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June 2006

## Brookhaven National Laboratory



June 2006



One of ten national laboratories overseen and primarily funded by the Office of Science of the U.S. Department of Energy (DOE), Brookhaven National Laboratory conducts research in the physical, biomedical, and environmental sciences, as well as in energy technologies and national security. Brookhaven Lab also builds and operates major scientific facilities available to university, industry and government researchers. Brookhaven is operated and managed for DOE's Office of Science by Brookhaven Science Associates, a limited-liability company founded by Stony Brook University, the largest academic user of Laboratory facilities, and Battelle, a nonprofit, applied science and technology organization.

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# Acronyms and Abbreviations

3PBP	Project, Planning, Programming and Budgeting Process
ADA	Americans with Disabilities Act
AGS	Alternating Gradient Synchrotron
AIP	Accelerator Improvement Project
ASCR	Office of Advanced Scientific Computing Research
ATF	Accelerator Test Facility
BER	DOE Office of Biological and Environmental Research
BES	DOE Office of Basic Energy Sciences
BHSO	DOE Brookhaven Site Office
BNL	Brookhaven National Laboratory
CCC	Civilian Conservation Corps
BSA	Brookhaven Science Associates
CAMP	Capital Asset Management Plan
CD-0	Critical Decision Zero (Approve Mission Need)
CD-1	Critical Decision One (Approval of Conceptual Design)
CD-R	Conceptual Design Report (Approve Preliminary Baseline Need)
CFN	Center for Functional Nanomaterials
CGC	Color Glass Condensate
CTN	Center for Translational Neuroimaging
D0	DZero (a worldwide collaboration at Fermi National
	Accelerator Laboratory)
D&D	Decontamination & Decommissioning
DOE	Department of Energy
ESS&H	Environmental, Safety, Security and Health
EBIS	Electron Beam Ion Source
EM	DOE Office of Environmental Management
fMRI	Functional Magnetic Resonance Imaging
FTE	Full Time Equivalent
GPP	General Plant Projects
GSA	General Services Administration
HEP	Office of High Energy Physics
HEPAP	High Energy Physics Advisory Panel
HFBR	High Flux Beam Reactor
IGPP	Institutional General Plant Projects (funded from overhead)
JPSI	Joint Photon Science Institute
LARP	LHC Accelerator Research Project
LEOSS	Long-Term Environmental Operation, Safety & Security
LHC	Large Hadron Collider
LRP	Long Range Plan
LSST	Large Synoptic Survey Telescope
MII	Maintenance Investment Index
LTRA	Long-Term Remedial Action
MINOS	Main Injector Neutrino Oscillation Search (at Fermi
	National Accelerator Laboratory)
MOU	Memorandum of Understanding

MPSC	Master Plan Steering Committee
NIH	National Institutes of Health
NP	DOE Office of Nuclear Physics
NPL	National Priorities List
NSAC	Nuclear Science Advisory Committee
NSF	National Science Foundation
NSLS	National Synchrotron Light Source
NSLS-II	The future National Synchrotron Light Source
OE	Operating Expense Funds (Overhead)
OSF	Other Structures and Facilities (Real Property)
P5	Particle Physics Project Prioritization Panel
PET	Positron Emission Tomography
QCD	Quantum Chromodynamics
QCDOC	Quantum Chromodynamics On a Chip
R&D	Research and Development
RPM	Risk Prioritization Method
QGP	Quark-gluon plasma
RHIC	Relativistic Heavy Ion Collider
RPV	Replacement Plant Value
S&T	Science and Techonology
SBU	Stony Brook University
SC	Office of Science
SLI	Science Laboratory Initiative
STEM	Scanning Transmission Electron Microscope
UV/IR	Ultraviolet/Infrared
WFO	Work for Others

## A.0 EXECUTIVE SUMMARY

BNL has prepared this Ten-Year Site Plan (TYSP) as required by DOE Order O 430.1B, "Real Property Management (RPAM). The format of the TYSP follows the guidance transmitted from DOE Office of Science, Acting Chief Operating Officer, Donald Erbschloe, dated March 28, 2006.

BNL's vision is to bring the power of science and technology to bear on compelling questions, with the goal of becoming the best science laboratory in the world in chosen areas. As we move forward, the single most important factor for making our vision a reality is the seamless alignment of exceptional science, outstanding operations, and developing and strengthening relationships with key stakeholders. With this in mind, we have identified key areas that will enable us to assume or maintain a world leadership role, which in essence will support the Laboratory into the future.

Specifically, in the next few years, BNL will concentrate on building the world-class capabilities of NSLS-II and nanoscience at the Center for Functional Nanomaterials and across the Laboratory, while RHIC as it transitions to a QCDLab, and the Center for Translational Neuroimaging continue with world-class distinction. This year, we are laying plans for two new major initiatives, energy and computational science, both of which have a foundation in our existing core competencies. We will also maintain a stake in other business lines for which we are nationally and internationally recognized.

In order to accomplish our goal of becoming the premier science laboratory in the world in chosen areas, it will be necessary to address critical infrastructure concerns. Paramount to this objective is implementation of infrastructure renewal, i.e., upgrades and enhancement needed to support the ever expanding scientific and technological base. The unique facilities in operation at BNL are dependent upon reliable uninterrupted utility services with sufficient reserve capacities to ensure unrestrained future growth.

Another high priority infrastructure goal is to provide world class facilities that will allow for the recruitment and retention of a premier staff. Many of the buildings and laboratories currently in use are of 1950's and 1960's vintage, and must be upgraded or replaced *in toto*. By providing and maintaining world-class facilities, the laboratory will continue to be recognized as a leader in those selected fields.

In response to the scientific priorities, BNL has formulated infrastructure projects as described in this TYSP in order to maintain mission-essential facilities and to provide new facilities in order to realize the BNL mission and to meet the goals expressed in the "DOE Office of Science Strategic Plan". We expect that these projects will be funded from the following sources:

• Infrastructure related line items. Over the ten-year planning period the DOE plan for the BMRR has only two projects Renovate Science Labs Phase I (\$18M) and Renovate Science Labs Phase II (\$20M). In BNL's alternate plan, an additional two projects are requested. The first is the Brookhaven Computing Facility Expansion to address the expanding infrastructure needs to support scientific computing. The second is Chilled Water Phase II to address current firm capacity issues and allow expansion of the central system for efficiency of operation.

- General Plant Projects (GPP) will average \$8.4M per year. To meet the needs of BNL's scientific initiatives, and reduce the backlog of non-line item capital construction needs, BNL has proposed an increase to average \$12.8M. This value is similar to that suggested by DOE in its own internal studies.
- Operating funded maintenance projects at \$5.8M per year, with the overall maintenance budget at 2% of RPV.
- Indirect funded deferred maintenance reduction projects averaging \$18M per year.
   This effort will pose particular challenges for BNL unless DOE operating budgets significantly increase.

BNL has a deferred maintenance (DM) backlog of \$250M, (including capital renewal projects), and a rehabilitation and improvement (RIC) backlog of \$52M. BNL also has over \$60M of environmental liabilities projects. In addition, new projects will likely be identified over the planning period to address emerging scientific needs and as a result of continued facility condition inspections. To meet the infrastructure challenges, BNL has developed the following strategies to meet the immediate needs of its staff and facility users:

- Consolidate staff from old wood structures that need to be demolished because of significant deficiencies. Projects such as the Research Support Building Phase I will allow buildings 130 (19,649 sf) and 134 (30,593 sf) to be consolidated out of and demolished.
- Maintain quality workplaces for users and employees and renovate space, as needed, to attract new programs. Line item projects like Renovate Science Labs Phases I and II, GPP upgrades and operating funded rehab projects will contribute to this. These efforts will be coordinated to support key scientific initiatives.
- Continue to defer major investments in 60 year-old wood buildings (mostly used by support staff). Perform minimum maintenance to keep buildings operational and safe.
- Pursue alternative financing for new buildings. BNL continues to pursue the housing reconstruction project to be funded using alternative financing. If successful, other projects will be considered using this approach.
- Use planning teams composed of engineering and site maintenance staff to identify and recommend strategies for maintaining utility system reliability at minimum cost
- Continue to work with NYPA to contract for power at a reasonable cost.
- Work with local and state regulators to prioritize environmental liability issues.
- Prioritize all infrastructure, ES&H and program investments to maximize infrastructure value, reduce risk, and support the science programs.

## **B.0 OVERVIEW OF SITE FACILITIES & INFRASTRUCTURE**

## **B.1 LABORATORY OVERVIEW**

Thirty percent of Brookhaven National Laboratory's (BNL's) 5,320 acre site is developed (Figure B-1). Many buildings date back to World War II, some earlier. Most major permanent facilities are the DOE/SC facilities built in the 1950s and 1960s, excluding those constructed for RHIC. The remainder are wells and treatment facilities supporting the DOE-EM's environmental remediation programs that are expected to move from the DOE-EM to the DOE-SC in FY10. BNL's site-wide utilities include electrical-, steam-, sanitary sewer-, storm sewer-, and potable-water- systems, with limited distribution systems for chilled-water and compressed air. The following tables and figures give an overview of the Laboratory's facilities:

Table B-1: Laboratory Space Distribution, Summary

Table B-2: Replacement Plant Value

Table B-3: Summary Overview of Facilities

Figure B-1: Aerial Photo – Brookhaven National Laboratory

Figure B-2 Space Distribution, General Services Administration (GSA) Group

Figure B-3: Building Age Distribution (Non-Excess Facilities)

Table B-1 Laboratory Space Distribution, Summary

SF	<u>SC</u> x 1,000	#		<u>EM</u> SF x 1,000	#
Facility Type	, -		1	,	
Total Buildings	3,916	341		<u>177</u>	18
Active Buildings	3,763	317		7	10
Operational Excess Buildings	<sup>1</sup> 101	13		0	0
Non-operational Excess <sup>2</sup>	52	11		169	8
Portable Structures <sup>3</sup>	79	233		8	23
Leased Off-site	0	0	I	0	0

- 1. Facilities which are slated to be made excess at a later time, generally associated with a new construction project which replaces the facility.
- 2. Facilities currently excess, generally awaiting demolition.
- 3. Portable structures: Facilities not meeting the criteria for real property buildings. They include trailers, sheds, containers, railroad cars, and HAZMAT storage units. Source: DOE FIMS Database 05/1/06.

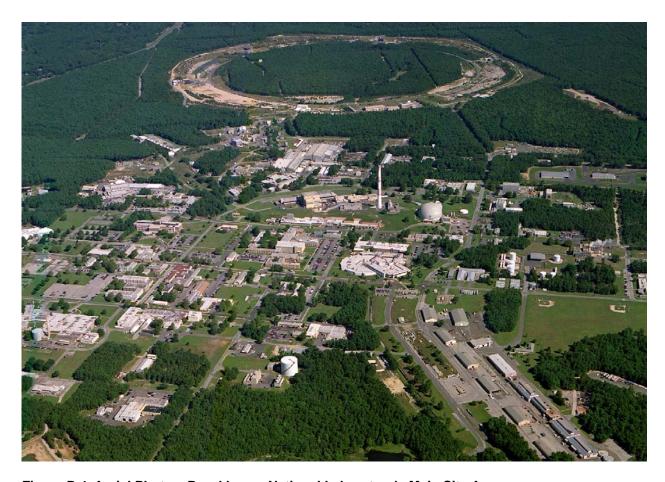
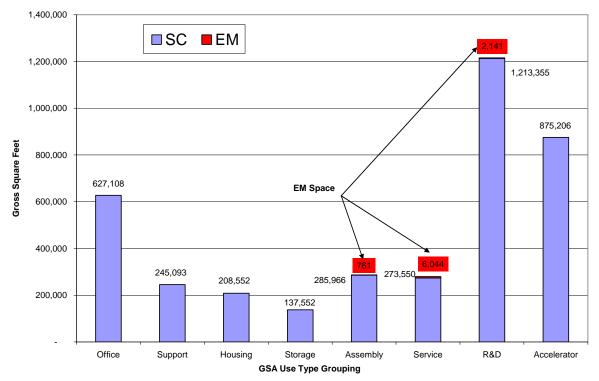


Figure B-1 Aerial Photo – Brookhaven National Laboratory's Main Site Area

Table B-2 Replacement Plant Value (\$M)

Asset Type	<u>SC</u>	<u>ЕМ</u>
Total Buildings	<u>1,167</u>	<u>52</u>
Active Buildings	1130	1
Operational Excess Buildings	22	0
Non-operational Excess Buildings	15	51
Total Other Structures & Facilities (OSF)	<u>1,459</u>	<u>132</u>
Active OSF (Non-Programmatic)	308	43
Active OSF Programmatic (3000 Series)	1142	0
Excess Other Structures & Facilities (OSF) Source: DOE FIMS Database 05/1/06.	9	89





<sup>\*</sup> R&D - Denotes all research facilities such as laboratories, excluding accelerators.

Figure B-3 Building Age Distribution (Non- Excess)

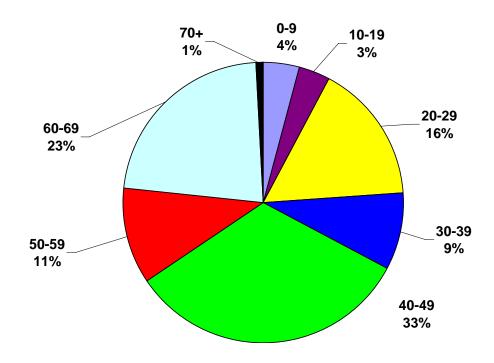


Table B-3 Summary Overview of DOE Facilities

	SC	EM
Landlord Program	Nuclear Physics	N/A
Buildings		
Buildings Number	341	18
Gross Square Feet (gsf)	3,916,251	176,926
·	256,548	117,790
Largest Occupied (in gsf)	RHIC Tunnel	HFBR
Wooden Buildings (gsf)	546,742	500
Age of Buildings: Average (Weighted by SF)	43	44
% Space older than 40 years	61.5	95.5
% Space older than 30 years	76.2	96.8
Quantity of Portable Structures (Trailers, sheds, storage containers):		
Real Property	0	0
Personal Property	233	23
Excess Facilities (Excludes Operational Excess):		
Uncontaminated (Radiological) (gsf)	23,170	0
Contaminated (Radiological) (gsf)	28,790	169,390
Building space to be Removed – FY06 (gsf)	19,452	0
RPV \$M Total	2,626	184
Buildings	1,167	52
Active Buildings (a)	1,130	1
Operational Excess Buildings (b)	22	0
Excess Buildings	15	51
OSF	1,459	132
Active OSF (Non 3000 Series) (c)	308	43
Active OSF (Programmatic – 3000 Series)	1,142	0
Excess OSF	9	89
MII Index Basis RPV (a + b + c)	1,460	N/A
Maintanana Invasiva da Las (MIN 0)		
Maintenance Investment Index (MII), %	4.4	N1/A
FY 03	1.4	N/A
FY 04	1.4	N/A
FY 05	1.7	N/A
FY 06 (budgeted)	2.0	N/A
FY 07 (planned)	2.0	N/A

	SC	EM
Deferred Maintenance (DM) Trend \$M		
FY 2002	227	1
FY 2003	220	1
FY 2004	230	1
FY 2005	252	1
FY 2006 (estimate)	257	1
Total Summary Condition (DM + RIC) *: \$M	370	921
Deferred Maintenance (DM)	222	859
Buildings	174	859
OSF	49	0
Rehab and Improvement Cost (RIC)	148	62
Buildings	143	62
OSF	5	0
*Doesn't include personal property trailers		
Total Summary Condition Index (TSCI): (percent of Total RPV) * (Excludes Excess Facilities), %	29.8	1.45
Facility Condition Index (FCI) (based on DM)	16.4	1.36
Rehab & Improvement Cost Index (based on RIC)	13.4	0.09
ACI (Asset Condition Index from RPAM Order) (1-FCI)	.836 (fair)	.986 (excellent)
AUI (Asset Utilization Index from RPAM Order)	.99 (excellent)	.99 (excellent)
Leased assets:	None	None

#### B.2 SITE / LABORATORY HISTORY

The area of Central Suffolk County now occupied by BNL served as the site of Camp Upton, during World War I. When the war ended, Camp Upton's usefulness was limited. For a time it functioned as a demobilization site for returning veterans, but eventually the Army deactivated it and sold off all its contents. In the 1930s, the Civilian Conservation Corps (CCC) replanted trees and vegetation, dug wells and constructed many firebreaks in an effort to establish the site as Upton National Forest. During World War II the Army rebuilt the site as an induction center. After the war, Camp Upton was used as a hospital and as a rest and recuperation facility. In 1947, the site was transferred to the Atomic Energy Commission, and BNL was born.

In converting the site to a national research center, barracks were designated for use as temporary facilities until permanent structures could be built to house the scientists and their equipment. When BNL opened, it was one of three National Laboratories, places where federally funded facilities could be built that were beyond the resources of individual universities. In the late 1940s, this meant constructing nuclear reactors and particle

accelerators, although, at that time, universities still could afford to build forefront accelerators.

Brookhaven's first generations of these two types of machines were completed in the early 1950s. The Brookhaven Graphite Research Reactor (BGRR) began operating in 1950, and the Cosmotron, a proton synchrotron that was the first particle accelerator to surpass 1 billion electron volts (GeV) was dedicated in 1952. The completion of each machine had a significant impact upon the growth of the Laboratory because supporting facilities and experimental equipment had to be built, along with special arrangements made for power, security, waste disposal, and so forth. A hot lab, built in 1951, to handle nuclear engineering and chemistry, and a medical research reactor, completed in 1958, were part of a new medical research facility. Two major, low-power accelerators also served Brookhaven low-energy nuclear physics and irradiation programs: a 3.5 million electron volts (MeV) Van de Graaff accelerator, and a 60-inch cyclotron. Both were built for industry, and were deemed suitable for use at BNL after undergoing major renovations by Brookhaven scientists, to make them suitable for research.

In the 1960s, BNL completed construction of a second generation of large machines. The Alternating Gradient Synchrotron (AGS), a 33 GeV proton accelerator, was finished in 1960, and the High Flux Beam Reactor (HFBR), a research reactor providing thermal neutrons, began operation in 1965. Again, the new large facilities entailed restructuring the BNL site in terms of support, organization, and power. The Brookhaven Linac Isotope Producer (BLIP) was attached to the end of the linear accelerator leading into the AGS, allowing medically useful radionuclides to be produced without interfering with the AGS work. Another major research facility built during the 1960s was the Tandem Van de Graaff, completed in 1970, that for many years was the world's largest electrostatic accelerator. These machines have been continually upgraded and are still in operation.

At the end of the 1960s, Brookhaven underwent a period of major budgetary constriction, losing a sizable fraction of its employees. A large nuclear engineering program, oriented towards developing a liquid metal fuel reactor, was terminated. During 1966 and 1967, the Laboratory acquired from Suffolk County and private land owners approximately 960 acres adjacent to its eastern boundary, 200 acres adjacent its northern boundary, and 750 acres adjacent to its southern boundary. In 1971, the North Tract of approximately 2,250 acres located on the north side of Route 25, was declared surplus Federal property and was transferred to New York State for use as parkland except for a 45 acre parcel acquired by the Shoreham-Wading River School District. Brookhaven pursued the possibility of having a third-generation accelerator from the 1960s onwards. By the mid-1970s, it seemed as though one would be built -- ISABELLE, a colliding-beam accelerator. A tunnel was completed early in the next decade, but the project was terminated before the accelerator could be constructed.

The late 1970s marked the development of a major new user facility at BNL, the National Synchrotron Light Source (NSLS) designed to exploit the use of synchrotron light as a research tool to study matter. Ground was broken in September 1978, and, in 1982, commissioning began on the Vacuum Ultraviolet (VUV) and x-ray storage rings. The NSLS received immediate, enthusiastic support from its user community, which included many major industrial firms, and in 1983, approval was received for expanding the NSLS building and adding several experimental beamlines. Today, the NSLS supports approximately 2,400 users from more than 450 university-, industrial-, and government-institutions on over 80 experimental beamlines.

In the 1980s, the development of heavy ion capability began at the AGS, with the construction of a transfer tunnel connecting the Tandem Van de Graaff accelerators to the AGS and an AGS Booster facility. In addition, the National Synchrotron Light Source was significantly expanded adding needed laboratory and office space.

In 1991, the Laboratory received approval for the Relativistic Heavy Ion Collider (RHIC). This world-class nuclear physics accelerator builds upon the heavy ion capability developed at the AGS and uses the facilities constructed a decade earlier for the ISABELLE project. RHIC achieved its first successful operation in the summer of 2000.

In November 2000, the DOE designated 530 acres of BNL property as the Upton Ecological and Research Reserve to protect the Pine Barrens and foster ecological research. The most recent funded major facility is the Center for Functional Nanomaterials whose construction began in late 2005 and is expected to be fully operational 2008. Another major building, now under construction, the Research Support Building will be operational in 2007.

#### B.3 TOPOGRAPHY AND HYDRO-GEOLOGY

BNL is situated on the western rim of the shallow Peconic River watershed. The marshy areas in the site's northern and eastern sections are part of the Peconic River headwaters. Depending on the height of the water table relative to the base of the riverbed, the Peconic River both recharges to, and receives water from the groundwater system. During sustained droughts, the river water typically recharges to the groundwater; with normal to abovenormal precipitation, the river receives water from the aquifer

In general, the terrain of the BNL site is gently rolling, with elevations varying between 44-and 120-feet above mean sea level. The depth to groundwater from the surface of the land ranges from 5 feet near the Peconic River to about 80 feet in the higher elevations of the central and western portions of the site. Studies of Long Island's hydrology and geology near the Laboratory indicate that the uppermost Pleistocene deposits, composed of highly permeable glacial sands and gravel, are between 120- and 250-feet thick. Water penetrates these deposits readily and there is little direct runoff into surface streams unless precipitation is intense. These sandy deposits store large quantities of water and are referred to as the Upper Glacial aquifer (Figure B-4). On average, about half of the annual precipitation is lost to the atmosphere through evapotranspiration and the other half percolates through the soil to recharge the groundwater. The area has a high average recharge rate (22 inches per year) that varies seasonally.

The Long Island Regional Planning Board and Suffolk County identified the BNL site as overlying a deep-flow recharge zone for Long Island groundwater. Precipitation and surface water that recharge within this zone can replenish the Magothy and Lloyd aquifer systems lying below the Upper Glacial aquifer. Experts estimate that up to two-fifths of the recharge from rainfall moves into the deeper aquifers. The extent to which groundwater at the BNL site contributes to deep flow recharge was confirmed using an extensive network of shallow and deep wells installed at BNL and surrounding areas.

This groundwater system is the primary source of drinking water for both on- and off-site private and public supply wells and, hence was designated by the EPA as a sole source aquifer system. BNL uses approximately 1.8 million gallons of groundwater daily to meet potable water needs and heating and cooling requirements. Approximately 60 percent of the

water pumped from BNL's supply wells is returned to the aquifer through on-site recharge basins: about 22 percent is discharged into the Peconic River. Human consumption, evaporation (cooling tower and wind losses), and losses in the sewer lines account for the remaining 18 percent. An additional 3.6 million gallons of groundwater are pumped each day from remediation wells for treatment and then returned to the aquifer via recharge basins.

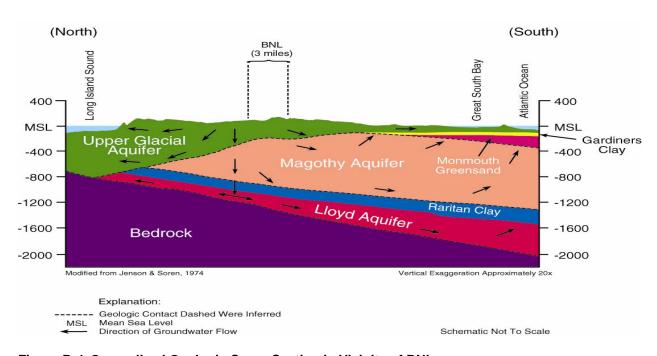


Figure B-4 Generalized Geologic Cross Section in Vicinity of BNL

## C.0 CURRENT AND FUTURE MISSIONS FOR THE SITE

## C.1 MISSION

Since its founding in 1947 by the distinguished research universities of the Northeast, the Laboratory's primary mission has been to deliver science-based solutions to the Nation's energy, environmental, and security needs. BNL is noted for the design, construction, and operation of large-scale, cutting edge research facilities that support thousands of scientists world-wide, and for its fundamental research into the nature of nuclear matter, materials, bio-medical and climate sciences.

## C.2 VISION FOR THE LABORATORY

As a multidisciplinary laboratory, BNL asks compelling questions in areas that range from fundamental science to science underlying technologies addressing issues of national concern. BNL envisions:

- Being the world-leading laboratory for high-energy nuclear and spin physics research
- Becoming a world leader in the fabrication and characterization of materials and systems at the Nanoscale
- Using translational biomedical imaging to understand and treat addiction
- Becoming a world-recognized laboratory in energy R&D that is leading in the development of advanced materials and processes for selected energy applications
- Becoming known as a world leader in computational science.

In pursuing answers, BNL will work in cross-disciplinary teams in collaboration with other university, national, and industrial laboratories. We will also participate in training the next generation of scientists in partnership with universities.

#### C.3 MAJOR BUSINESS LINES

As outlined in the DOE "Business Plan for the Office of Science's Brookhaven National Laboratory", BNL has three major scientific business lines, which in the order of current investment are nuclear physics, basic energy sciences, and bio-medical sciences, which align with the missions of the Office of Nuclear Physics (NP), the Office of Basic Energy Sciences (BES), and the Office of Biological and Environmental Research (BER). The overarching goal of each of these business lines is:

## C.3.1 Nuclear Physics (NP)

Play a major role in determining (from the Office of Science *Strategic Plan: Explore Nuclear Matter from Quarks to Stars*):

- "What is the structure of the nucleon?"
- "What are the properties of hot nuclear matter?"

RHIC (Relativistic Heavy Ion Collider), BNL's premier nuclear physics accelerator complex, is the world leader in experiments exploring quantum chromodynamics (QCD) and in spin physics. BNL is also a world leader in the theory effort related to these topics. Evolving the RHIC complex to the QCDLab at RHIC will assure that its world leadership role is maintained.

## C.3.2 Basic Energy Sciences (BES)

Offer a new approach to address the energy security challenges facing the U.S. by determining: (from the Office of Science Strategic Plan: Advance the Basic Sciences for Energy Independence)

- "What new, useful properties do materials display as we move from the classical or macroscopic world to objects composed of a few to a few thousand atoms or molecules?"
- "How can we efficiently assemble molecular-scale structures?"
- "How can we master the control of energy-relevant systems that exhibit collective, cooperative, and/or adaptive behaviors?"

BNL's programs in strongly correlated systems and in fuel cell nanoparticle synthesis and reactivity are considered to be among the best in the world. Future enhancements associated with the NSLS-II (the future National Synchrotron Light Source), NSLS, the Center for Functional Nanomaterials (CFN), and theory will ensure the prominence of BNL's program in catalysis science. Novel x-ray and UV/IR techniques at NSLS will take on a unique role at NSLS-II, which will provide the world's finest tools for x-ray imaging and spectroscopy with capabilities at the nanoscale.

## C.3.3 Bio-medical Sciences (BER/NIH)

Master the convergence of the physical and the life sciences to deliver revolutionary technologies for health and medical applications (from the Office of Science Strategic Plan Harness the Power of Our Living World) by enabling determination of:

 How the brain develops, changes, and adapts to the environment over a life time (through the combination of expertise in radiotracer chemistry, imaging physics, and preclinical and clinical neuroscience).

BNL's Center for Translational Neuroimaging (CTN) is a world leader in radiotracer development and the use of innovative technological approaches in Positron Emission Tomography (PET) and functional Magnetic Resonance Imaging (fMRI) for imaging the human brain. BNL is the best in the world in studying the impact of addiction on the brain. In order to capitalize on this strength, BNL plans to double its capability in this area.

#### C.3.4 Other

BNL has a stake in other business lines (also in the order of current investment) for which it is nationally and internationally recognized:

## C.3.4.1 High Energy Physics (HEP)

• To search for possible physics beyond the Standard Model (from the Office of Science Strategic Plan: Explore the Fundamental Interactions of Energy, Matter, Time, and Space)

BNL is involved in high priority HEP efforts. It serves as the host laboratory for U.S. participation in the LHC ATLAS experiment at CERN that will manage the U.S. roles in physics research, computing, and future upgrades. BNL manages the LHC Accelerator Research Project (LARP) for the LHC luminosity upgrade. Other areas involving BNL scientists are high energy theory, MINOS, D0, the Accelerator Test Facility (ATF), and advanced accelerator R&D. In the future, we may also have roles in the continuation of muon g-2 at the AGS, LSST, and a neutrino experiment; a report on their status will be released by HEPAP's P5 subcommittee later this year.

## C.3.4.2 Climate Change Science (BER)

• To improve climate models and increase our ability to distinguish between natural and anthropogenic climate change (from the Office of Science Strategic Plan Harness the Power of Our Living World)

BNL is a U.S. leader in atmospheric chemistry, particularly studies related to the creation and evolution of aerosols, and their role in the global radiation balance and is home to the Chief Scientists for the DOE Atmospheric Science and Atmospheric Radiation Measurement Programs.

#### C.4 MAJOR ACTIVITIES/INITIATIVES

BNL's major activities/initiatives (described in our *Business Plan*), which build on current strengths and that will ensure the long term vitality of our business lines are:

- NSLS-II
- RHIC→QCDLab at RHIC
- Nanoscience
- Translational Biomedical imaging

As will be described in the following sections, BNL is growing now and will continue to grow over the next ten years. Such growth will necessitate significant expansion of our infrastructure. By the very nature of the NSLS-II and CFN initiatives, buildings are being designed specifically to suit them and facility conversions are not needed. However, for QCDLab, improvements to the aging infrastructure are necessary and are planned over the next few years.

The CFN, currently under construction, is the first of the new scientific facilities to be built at BNL, to be followed shortly thereafter by the Electron Beam Ion Source (EBIS), the first upgrade to RHIC. Leveraging the research that is being carried out at the current NSLS and the CFN, we are optimistic that NSLS-II will be sited at BNL and operational in 2013. We are

beginning to prepare a compelling case for CD-0 for RHIC-II and for the evolution of RHIC to the QCDLab at RHIC to be presented in the 2006/7 NSAC Long Range Plan. In FY 06, we are also beginning to flesh out plans for two new initiatives, energy and computational science.

## C.4.1 Major Initiative: NSLS-II

The NSLS has served a large community of researchers and users (on average 2400 users/year) for over 23 years. However, its capabilities are restricted because the brightness has reached its theoretical limit after many stages of improvement and only a small number of insertion devices are possible. These factors will increasingly limit the scientific productivity and impact of its large user community.

In order for the discovery potential of the NSLS to continue beyond the next decade, BNL plans to upgrade its capability by constructing the world's best synchrotron light source, NSLS-II, a 3<sup>rd</sup> generation storage ring, together with advanced insertion devices, optics, detectors, and a suite of scientific instruments. NSLS-II will deliver the world's highest brightness and flux, an increase over those of the current NSLS by more than 10,000 times and 10 times, respectively and unprecedented stability. Its advanced optics will produce spatial resolution of 1 nm and energy resolution of 0.1 meV.

The unique characteristics of NSLS-II will open up new regimes of scientific discovery and investigation, and enable exploration of the correlation between nanoscale structure and function, the mechanisms of molecular self-assembly and the science of emergent behavior, especially for correlated electron system; most importantly, these are precisely the focus areas for Basis Energy Sciences called out in the *Office of Science Strategic Plan*.

Ultimately, NSLS-II will benefit DOE and the taxpayer by advancing nanoscale science that will lead to improved energy technologies and systems. It will provide the Nation's science community access to a world leading research facility, and U.S. industry a competitive advantage for new materials and technologies beyond silicon. Toward this end, DOE granted CD-0 status to NSLS-II at the end of FY 05.

An important consequence of the CD-0 approval is receipt of a commitment from New York State to build a Joint Photon Science Center (JPSI) at BNL, provided NSLS-II is sited here. JPSI would serve as an intellectual center for development and application of photon sciences and as a gateway for users of NSLS and NSLS-II. The JPSI building would offer office space, meeting areas, and laboratories in an interdisciplinary R&D center. In addition, because we anticipate the user community to grow and eventually exceed 2,500, there are on-going discussions with local government authorities on their funding a dormitory near NSLS-II for visiting researchers.

As BNL transitions from NSLS to NSLS-II, the core operations of NSLS will continue and management will continue to work with users to assure cutting edge operations until NSLS-II is operational. The NSLS programs will be moved to NSLS-II and during the < 1 year period while programs are transferring, both machines will be operated. NSLS operations staff will transfer to NSLS-II. A plan is being developed to renovate the NSLS building for other BNL programs or for use by support services.

A summary analysis of the impact of NSLS-II on the site is provided in Table C-1.

Table C-1 Impact of NSLS-II on the Site

Square footage (storage ring)	350,000 for storage ring (other utility buildings may be added depending on final utility design)
Square footage (JPSI)	50,000 (contingent on CD-1 approval from DOE; funded by NYS)
Whether offsetting space is available, or if a waiver is required	Will require a waiver although some offset may be available if we receive a credit for consolidating other departments into NSLS and demolishing their vacated space. This would happen after NSLS-II is operational, so it is a concern.
Whether project will demolish existing space	Not determined at this time pending resolution of warehouse relocation and waiver request issues.
Date the facility is to be completed and added to FIMS	Assumed to be at project closeout, 2013
Expected RPV	Conventional facilities will be in the range of \$200-\$225M (not including experimental equipment value) Current NSLS operating budget is ~\$34M, for NSLS II it is expected to be ~\$90M+. Unclear what fraction of that \$56M difference will go to site maintenance funding
Staffing increase	About 100 additional staff
Need for more office space, etc.	None beyond that included in the project; existing cafeteria & shops are OK.
Increase in utility capacity	CCWF capacity needs to be increased to 3,600 tons to provide firm capacity
Traffic and parking needs	Part of the project.

## C.4.2 Major Initiative: RHIC→QCDLab at RHIC

The discoveries at RHIC have led to compelling questions about QCD and vice versa. Compelling questions have in turn prompted the need for evolution of the facility to further the study of QCD experimentally and theoretically. The expectation is that the evolution of RHIC to the QCD Lab at RHIC will play a major role in determining the nature of the quark-gluon plasma and the visible universe, the origin of the spin of the proton, and the role of the color glass condensate (CGC) in the structure and interaction of high energy hadrons. This will require a staged approach through a series of time frames which will entail luminosity, polarization, and experimental equipment upgrades, construction of an electron ring and an associated new detector for eRHIC (the world's first electron-heavy ion and polarized electron-proton collider, e+A/e+p), and high-end computing capability (QCDOC and Blue Gene/L) for next-generation lattice QCD simulations.

RHIC has already had a tremendous impact in nuclear physics, science, and society, with over 100 papers, >5,000 citations, and a comparable body of theory papers. Furthermore, the April 2005 announcement by RHIC's four large detector groups that RHIC's heavy ion collisions are producing a liquid (instead of the postulated gas) tops the *American Institute of Physics'* list of top physics stories for 2005, as well as being cited at year end by *Science News, USA Today*, and *Discover*. Furthermore, RHIC is an outstanding educator of nuclear physicists. The four RHIC experiments have produced close to 100 Ph.D. students, with more to come. QCDLab will train the next generation of scientists.

Past support from NSAC was enthusiastic, which prompted DOE to include RHIC-II and eRHIC in "Facilities for the Future of Science: A Twenty-Year Outlook". At DOE's recommendation, BNL prepared a Mid-Term Strategic Plan for RHIC, which lays out the path forward for the period 2006-2011, and implicitly beyond. The mid-term phase leads directly into operation of the collider at high luminosity with e-cooling (first of a kind). The strategy is based on upgrading the capabilities of the PHENIX and STAR detectors and providing computing resources to the RHIC Computing Facility. An important consequence of this plan is that the RHIC-II project is more narrowly defined as a luminosity upgrade (at lower cost) under this scenario, having already equipped the two large detectors to pursue the compelling science enabled by higher luminosity.

Besides R&D leading to enhanced polarization/luminosity and implementation of e-cooling, the mid-term will also see the design of eRHIC, improvements to the aging infrastructure at the RHIC/AGS complex, and the construction of EBIS, the new injector to RHIC that will replace the 35-year old Tandem van de Graaff accelerators. Details of the planned upgrades are summarized in Figure 4-1 of the *Mid-Term Strategic Plan* that can be found at <a href="http://www.bnl.gov/henp/">http://www.bnl.gov/henp/</a>.

Since EBIS involves a building addition, a summary analysis of its impact on the site is provided in Table C-2.

Table C-2 Impact of EBIS on the Site

Square footage	EBIS will be located in Bldg. 930. A two story, 2400 square foot addition to Bldg. 930 will house support equipment.
Whether offsetting space is available, or if a waiver is required	Offsetting space will come from the BNL space pool
Whether project will demolish existing space	No space demolished
Date the facility is to be completed and added to FIMS	Assumed to be at project closeout, Fall 2007
Expected RPV	Expected RPV of the conventional facilities and resulting increase in site maintenance funding: \$1.3M for conventional construction.
Staffing increase	None
Need for more office space, etc.	No need
Increase in utility capacity	None
Traffic and parking needs	None

## C.4.3 Major Initiative: Nanoscience

Nanoscience offers a new approach to address the energy security challenges facing the U.S. through the development of materials exhibiting novel and unprecedented functionality for energy manipulation and utilization. BNL will focus on nanostructured catalysts, electronic nanomaterials, and bio/soft nanomaterials and interfaces, the scientific themes of the CFN, in order to develop the scientific foundation and tools for the design and creation of functional nanomaterials.

Nanoscience is an emerging field. BNL will forge leadership programs in energy, hence making its activities unique in the world. A clear advantage of the CFN is its proximity to the NSLS (and in the future to NSLS-II) and existing programs that are related to the scientific themes of the CFN.

The potential benefit of BNL's nanoscience program to DOE and the taxpayer is breakthrough science leading to revolutionary technologies in energy conversion, storage, and utilization that will impact the H-economy, solar energy, and environmental protection. It will enable open access to world-leading integrated science programs and facilities, and with the other Nanoscience Research Centers, maintain U.S. competitiveness in nanoscience.

The CFN building has ample laboratory and office space for the CFN hires. Its impact on the site is shown in Table C-3. However, the condition of existing laboratory space for the core programs and future hires in those programs is a concern. Many experimental laboratories are 40-50 years old. Although BNL's 3PBP program has provided some relief on a smaller scale, in FY07, BNL will start the Renovate Science Lab Phase I project to ameliorate the situation, with construction in FY 08 and 09, finishing in FY 10.

Table C-3 Impact of the CFN on the Site

Square footage	94,500		
Whether offsetting space is available, or	Offsetting space from BNL's space bank		
if a waiver is required	is available		
Whether project will demolish existing	Building that housed Teacher's Federal		
space	Credit Union was demolished		
Date the facility is to be completed and	CD-4a 2007; CD-4b April 2008		
added to FIMS			
Expected RPV	\$40M (Conventional facilities portion)		
Staffing increase	~25-30 facility staff		
Need for more office space, etc.	None beyond that which is included in		
	the project. Existing cafeteria & shops		
	are OK		
Increase in utility capacity	None needed		
Traffic and parking needs	Part of the project		

## C.4.4 Major Initiative: Translational Biomedical Imaging

The scope of this initiative is to expand the capability of the Center for Translational Neuroimaging (CTN) in its studies of the function and response of the human brain to a

variety of factors including addiction, aging, etc., and translate findings to clinical use. To accomplish this, BNL will develop collaborations with neighboring research hospitals, forefront PET and fMRI capabilities for animal and human studies, and new tools based on core strengths in the physical sciences. Just recently, the Laboratory entered into an agreement with Mount Sinai School of Medicine that will provide BNL access to a broad base of research patients to facilitate improvements in the understanding, diagnosis, and treatment of disease and to enable us to jointly compete for NIH funds. Over the next few months, it is possible that we will have agreements in place with two other nearby medical institutions.

DOE's long term investment in radiochemistry and imaging instrumentation at BNL is beginning to have a real payoff, especially with the CTN's body of highly regarded results on addictive behaviors. As the CTN develops an understanding of, and potential treatment for addiction and offers an improved understanding of brain chemistry and its effect on human behavior, the potential benefit to humanity will be transformational.

Two years ago, the CTN was formed to integrate the imaging groups in the Medical and Chemistry Departments. Administrative consolidation of the CTN into the Medical Department became effective on May 1, 2006, although physically relocating the Chemistry group is not planned at this time. Any additional staff will be housed in existing space. Unlike the three other major initiatives, the expanded program will not require construction. Medical imaging has benefited in the past from the GPP program for laboratory upgrades, which will continue in the future. Thus, the impact to the site is minimal.

## C.4.5 New Initiative: Energy

DOE's overarching mission is "to advance the national, economic, and energy security of the U.S." with the goal of "protecting our national and economic security by promoting a diverse supply and delivery of reliable, affordable and environmentally sound energy." Using its portfolio in energy R&D, DOE will accomplish this by placing an increased emphasis on integrating basic energy science research with energy technology development. President Bush elevated energy to the national consciousness in February when he launched the Advanced Energy Initiative that outlines an aggressive plan to help the U.S. move beyond our dependence on fossil fuels through expanded development of alternative energy sources.

We envision BNL "to be a world-recognized laboratory in energy R&D that is leading the development of advanced materials and processes for energy applications". Our strategy is science-based and focused on long range R&D with a strong nanoscience component. It aims to increase connections among all BNL directorates in joint projects that build on nanoscience, core, newly-funded and planned programs with the potential to contribute to finding solutions to unmet challenges (such as cost-effective solar energy conversion and catalysis).

The four areas where we will concentrate are catalysis, high-performance materials, solar energy, and biologically-derived fuels, of which the first three have direct connections to nanoscience efforts. The tools at our disposal are the coordinated CFN facilities, NSLS and NSLS-II, modeling/analysis capabilities, and the energy efficiency test laboratories. Besides inter-directorate connections, a critical element to success is developing and nurturing regional and national partnerships in energy with deeper connections to universities, other national laboratories, and industry. We have also strengthened our position by participation

in the Laboratory Working Group and as a result will be poised to take advantage of DOE's American Competitive Initiative that will fund areas of science most likely to contribute to long term economic competitiveness.

For the immediate future, in order to further grow programs in these areas, BNL will use discretionary funding and encourage staff to respond to the BES calls in instrumentation, hydrogen, solar energy and nuclear energy. In addition, for each focus area, a working group was set up and charged with performing a competitive posture analysis as a basis for a long-term coherent energy strategic plan to be completed by mid-summer of '06. This will detail the resources, including potential infrastructure needed to bring the plan to fruition.

## C.4.6 New Initiative: Computational Science

One of the essential elements in our vision to grow the Laboratory is to become a world leader in computational science. BNL is home to two 10 Teraflop Quantum Chromodynamics on a Chip (QCDOC) supercomputers and large scale computing farms, i.e., the RHIC Computing Facility and the U.S. ATLAS Tier I Computing Center, which provide vital computing capacity for complex data analysis. At this time, our plan for computation is still evolving, as new developments are unfolding rapidly.

The immediate future of computational science at BNL will be driven by the strength of QCD/lattice gauge and nanoscience/materials science theorists who are currently using the QCDOC machines "to deliver computing for the frontiers of science" (Goal 6 of the Office of Science Strategic Plan). Over the next several months, a hundred teraflop computer, Blue Gene/L will be purchased with funds provided by New York State. We also foresee, over the next two years, committing discretionary funds to hire a champion to oversee the effort and to ramp up the staff to build the organization that will eventually include computational biology. While we are doing this, it is important that we foster a relationship with DOE for future support. We have already garnered strong support from Northeast Universities and industry.

Since we expect to co-locate the Blue Gene/L in the space that the ATLAS, RHIC, and QCDOC computers occupy, its infrastructure needs are intimately tied to the building upgrades for ATLAS and RHIC computing, which have been described in the *Mid-term Strategic Plan for RHIC* as a "serious issue". Over the next 1-2 years, power and cooling can be added at the current location, but after that, additional floor space and accompanying power, air conditioning, fire detection/suppression, etc. will have to be provided. A Director's level committee, charged with providing a workable solution for scientific computation at BNL, has devised a space and utility plan that will accommodate Blue/Gene L when it arrives later this year. In the long term, perhaps the most serious concern is central chilled water capacity. While some space can be refitted to meet the most immediate needs, optimally new space is needed to address the long range needs in an efficient manner. BNL has proposed new computer space in the proposed alternate plan for SLI funding (Section D.11)

#### C.5 SUMMARY

With a commitment from NYS for a super computer in hand, CFN operations starting in FY08, EBIS construction on the near horizon, an MOU with Mount Sinai School of Medicine signed, and the CD-R documentation for NSLS-II scheduled to be delivered to DOE in

October 2006, the future for BNL looks bright. Table C-4 shows the projected Laboratory growth in funding and staffing over the next ten years.

For this summary, we are assuming the following:

- \$26M from NYS (WFO) in FY 06 for a Blue Gene Computer
- R&D support (~\$32M) for NSLS-II beginning in FY 07
- \$19M in operating funds for the CFN beginning in FY 08
- \$90M+ in operating funds for NSLS-II starting in FY 13, while NSLS is still operating
- NSLS turns off in FY 14
- Doubling Medical Imaging (WFO) at the rate of \$2M/year for five years (FY 08-FY 12)
- Additional ~\$10M from ASCR over 3 years starting in FY 09
- Other DOE (EM) has additional scope (~\$10M/yr) in FY 09-12 FY10 for reactor D&D, then drops by \$20M/yr out to FY 17.
- Beyond FY 07, funding levels are escalated by 3% a year.

As per the TYSP guidance, it excludes construction project funding and shows actual funding for FY05, current projections for FY06, and Presidential Budget funding levels for FY07.

Table C-4 Summary of Expected Funding (\$M) and Staffing

Funding	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
Total \$	456	472	497	532	564	596	628	659	739	707	708	710	711
Total Staffing: (FTEs)	2,618	2,513	2,716	2,844 <sup>1</sup>	2,860	2,876	2,892	2,908	2,712	2,712	2,712	2,712	2,712

<sup>&</sup>lt;sup>1</sup> Based on the FY 08 budget submission, BES will grow by 136 FTEs from FY 06 to FY 08, with an additional 195 "construction" FTEs lab-wide (growing from 13 in FY 06 to 208 in FY 08). We are also assuming Imaging will double from FY 08-12, so we project an increase in FTEs from ~20 to 40 (4/yr). For ASCR, the increase will be from 8 FTEs in FY 08 to 18 in FY 12 (2/yr), and a few extra (10 FTEs in 09-12) for the reactor work.

## D.0 FACILITIES AND INFRASTRUCTURE

## D.1 VISION, GOALS, AND STRATEGY (VGS)

## D.1.1 Vision

BNL's vision is to bring the power of science and technology to bear on questions that are of utmost significance to the U.S. taxpayer and the DOE, with the goal of becoming the best science laboratory in the world in *chosen* areas. Our vision relies on outstanding operations, including building and operating unique facilities, and vital relationships with our communities and stakeholders, and the world-class research institutions in the Northeast region.

The Laboratory's infrastructure is considered to be a major platform for our science and technology mission. Accordingly, the goals and objectives for infrastructure are derived directly from BNL's strategic science planning. While the current physical plant has facilitated BNL's mission for many years, less than optimum condition, capability, and location of facilities have hampered it. This has diminished the Laboratory's ability to attract and retain key staff, unnecessarily increased operating costs, restrained the efficiency of our employees and users, and limited our ability to undertake certain aspects of the mission.

## D.1.2 Goals

BNL's first and foremost infrastructure objective is to ensure the DOE's goal of enabling great science by facilitating new frontier research opportunities that will support the Laboratory into the future. To achieve this objective, BNL developed the following goals:

- Establish quality workplaces for users and employees
- Consolidate science-theme areas
- Encourage interdisciplinary interactions
- Create a positive user-experience
- Incorporate information technology
- Establish openness and community relations
- Support safe, environmentally sound, and cost-effective operations

## D.1.2.1 Establish Quality Workplaces for Users and Employees

This goal is both one of quantity and quality. BNL staff and users are primary customers and must be supported with a sufficient number of high-quality workplaces, equipped with the proper information-technology tools, and appropriately located adjacent buildings housing their colleagues and/or their experiments. Planned improvements must increase the productivity of our users while they are at BNL, thus leveraging the scientific output from the DOE's investment in our major user facilities.

BNL's specific objectives include the following:

- Providing new facilities to consolidate BNL's users and staff into modern space, including offices, conference rooms, and administrative support and seminar space. With this "right-sizing", BNL can reduce its footprint, thereby focusing maintenance funds on mission-critical facilities, and reducing the deferred maintenance backlog on facilities it can demolish.
- Upgrading existing permanent lab/office space to achieve a preferred working environment supportive of the world-class facilities needed to attract and retain world-class staff.
- Improving the network infrastructure servicing users' workspaces
- Bringing the Laboratory into compliance with the Americans with Disabilities Act (ADA)

## D.1.2.2 Consolidate Science Theme Areas / Encourage Interdisciplinary Interactions

BNL's scientific leadership themes are far more interdisciplinary than previously. Consequently, our infrastructure of permanent lab/office buildings currently dedicated to one discipline (e.g., Physics, Chemistry, Medical, Biology) must be reconfigured and supplemented by new, flexible laboratory buildings that can accommodate multidisciplinary teams.

This goal encompasses the following specific objectives:

- Renovating major permanent lab/office buildings. For the most part these buildings have structural systems that will last beyond the planning period; however, their electrical- and mechanical-systems have reached the end of their economic life (30-40 years). Particular modifications will be built into these renovations to increase the flexibility and adaptability of the space to envelop future missions.
- Developing new general-purpose laboratory/office facilities, as required, to meet the
  mission needs to allow reorganization and consolidation of staff into more efficient
  workgroups, and promote the interaction of interdisciplinary scientific teams.
- Locating new scientific facilities and creating pedestrian access across the site's central area to promote interaction amongst the scientific staff.
- Upgrading information technology site-wide to enable staff to more readily share information.
- Providing library facilities that can accommodate the state-of-the-art requirements of scientific staff and users.

## D.1.2.3 Ensure a Positive User Experience

The success of many of BNL's user facilities depends on the contributions of the approximately 4,000 visiting scientists who use them each year. It is important that the site's infrastructure have the facilities, networking infrastructure, transportation routes, housing, and recreational facilities to make their visits both professionally productive and personally satisfying.

The following specific objectives are designed to achieve this goal:

- Providing facilities to streamline the users' orientation and training.
- Facilitating their transportation and orientation around site by arranging vehicularand pedestrian-pathways to facilitate movement around the site.
- Carefully grouping the Laboratory's support organizations and community services (e.g., Credit Union, Human Resources, Staff Services) in close proximity so that users and staff can access these services in one place, or in close proximity.
- Providing modern, efficient, safe, and comfortable workspaces and housing specifically designed and located to support the duration of the user's stay at BNL.
- Making available adequate conference and videoconference facilities available for scientific meetings and discussions.
- Supporting the educational and recreational-needs of users and their families.

## D.1.2.4 Incorporate Information Technology

As noted above, offering the latest capabilities in information technology is a key factor in meeting several of our infrastructure goals. The following objectives are specific to this goal:

- Continue to keep pace with advances in information technology by developing and maintaining a site-wide fiber optic "utility" system.
- Provide and upgrade facilities, as needed, to make space available for computing and communications assets, and to decrease the vulnerabilities of the site's networking infrastructure.

#### D.1.2.5 Establish Openness and Community Orientation

The Laboratory cannot succeed over the long term without the community's support. Various programs in community involvement, and government and public affairs are essential to meeting this goal. The following specific objectives ensure that our infrastructure adequately supports it:

- Developing facilities to receive, orient, and document visitors to the site.
- Providing facilities that support community outreach, such as science education.
- Providing facilities that offer cultural resources to the community and to employees and users.

## D.1.2.6 Ensure Safe, Environmentally Sound, and Cost-Effective Operations

Many Laboratory systems and processes were established to support this goal. However, the condition and configuration of the Laboratory's physical plant also play a key role in achieving it. Hence, the following are our specific objectives:

• Eliminating ES&H deficiencies as part of renovating permanent building and demolishing older ones.

- Consolidating support organizations to improve efficiency and reduce operating costs.
- Improving services to on-site "customers" and reducing costs by consolidating maintenance and fabrication shops.
- Providing state-of-the-art capabilities for handling materials.

## D.1.3 Strategy

To ensure that our limited funds are applied to best address BNL's goals and strategic initiatives, projects are prioritized using data from facility condition assessments and utility system reliability data. Investments are made in maintenance and improvement projects to ensure BNL's scientific mission is supported. Under BNL's project prioritization system, Project Planning, Programming and Budgeting Process (3PBP) requested projects are evaluated to ensure that BNL's strategic objectives are realized. Those projects which are judged to have the greatest value on meeting these objectives are likely to be funded. Maintenance related projects are generally prioritized by teams of subject matter experts consisting of maintenance supervisors and engineers using the latest facility condition assessments.

BNL fully recognizes the need to ensure that basic infrastructure is continuously renewed, whilst having to accept that it cannot proceed at the preferred pace such as in a resources unconstrained environment. Recognizing this, BNL has developed a road map of activities and resources to achieve its goals to the extent fiscally possible. Each year projects are prioritized considering both risk/benefit and their potential to contribute to meeting BNL's goals. Continuing overhead funded projects, such as those which are maintenance related, are selected each year from backlog lists based on the evaluations of expert teams who consider, safety and health, urgency of the need based on condition, and potential to impact programs. These include roofing, mechanical equipment such as chillers and air handlers, and electrical equipment. Renovation of 30-40 year old laboratory space is another recurring project. Each year BNL funds those laboratory renovations and upgrades that address our most urgent needs and support strategic objectives using both overhead funds and GPP based on the nature of the project to be either replacement or betterment centered. In FY07, BNL will start the Renovate Science Lab Phase I project that will help in jumpstarting the backlog reduction project.

BNL uses GPP funds to address new facilities and capabilities required to meet mission objectives and to provide upgrades to meet current ES&H standards. BNL has increased its Maintenance Investment Index to 2.0% that should slow increases in the deferred maintenance backlog increases to escalation levels only. In addition, BNL plans to meet the DOE-SC proposed targets for deferred maintenance reduction which will initially lower the inflationary increases in the backlog and in future years lower the backlog itself.

In recognizing the fiscal limitations of the available funding, BNL has proposed alternative funding levels (see section D.11) for capital investment to provide a more optimum funding level to meet the goals BNL has set forth.

## D.2 PROCESS FOR IDENTIFYING FACILITY & INFRASTRUCTURE NEEDS

#### D.2.1 Overview

BNL's infrastructure needs required to meet the Laboratory's vision and goals and to address its strategy for obtaining them are developed mainly from the following sources;

- BNL Business Plan (2005)
- BNL's Science and Technology (S&T) Strategic Plan 2005
- Site Master Plan 2000 / 2004 Update
- EM Life-cycle Baseline.
- Condition assessment surveys

The following smaller processes also contribute to identifying these needs and are as follows:

- Tier I inspections
- Operational readiness reviews
- Exit readiness reviews
- Space Consolidation Plan
- Program assessments

#### D.2.2 BNL Business Plan

As per Congressional language from the "House Energy and Water Development Committee Report on the FY05 Appropriations Bill, which was agreed to in the subsequent Conference Committee Report", on 1/15/05 Dr. Orbach notified each Laboratory Director of the requirement to prepare a Business Plan. Its purpose is to outline the "primary mission...as it related to each Lab's lead program office(s), a clear statement of secondary missions to support other DOE program offices and other Federal agencies, and a five-year plan identifying research, facilities, and resource requirements necessary to fulfill these primary and second missions." Toward this goal, Dr. Orbach scheduled a meeting with each Laboratory to learn about what it proposed to include in such a Business Plan. BNL's presentation took place on May 16, 2005. Attendees were the Office of Science Associate Directors, members of Dr. Orbach's staff, BNL's Director, both Deputy Directors, the ALD for Policy and Strategic Planning, and representatives from BSA and BHSO. It was followed by a ~30 page document that the Office of Science condensed and sent, along with the Five Year Budget Plans, to OMB in early March 2006.

## D.2.3 Science Strategic Plan

The Laboratory Strategic Plan for Science and Technology follows directly from BNL's Business Plan. It can be found at http://intranet.bnl.gov/intranews/strategicPlan/default.asp. It was further refined at a Senior Management retreat held in early FY '06, whose purposes were to:

- Review FY05 performance (with a particular emphasis on lessons learned from significant events).
- Review progress and risks associated with key institutional S&T initiatives and emerging opportunities,
- Review progress and risks associated with key ESS&H initiatives,
- · Discuss a vision for infrastructure modernization, and
- Discuss a few key issues that seem to affect overall laboratory level management.

One of the critical outcomes of the retreat was the identification of a core set of strategic focus areas for the lab. They are:

- Advancing the Frontiers of Science
- Attracting and Sustaining Top Talent
- Modernization of Laboratory Infrastructure
- Improving the Quality and Reducing the Cost of Business
- Achieving Excellence in ESS&H
- Fostering Stakeholder Relationships

They serve as a framework for planning and performance monitoring at the institutional level enabling resource allocation decisions within a strategic framework. For each of these six areas, a committee was set up to flesh out the details that will be captured in a "white paper" slated for completion during the summer of '06.

#### D.2.4 BNL Master Plan

Following the philosophy that infrastructure is a platform for research, the Laboratory Director established a Master Plan Steering Committee (MPSC) chaired by the Deputy Director for Operations. The committee was charged to development of a science-driven plan. The members of the MPSC includes both Deputy Directors, two of the five science Associate Laboratory Directors, three Assistant Laboratory Directors, and the Deputy Manager of the DOE's Brookhaven Site Office. A professional planning firm, the S/L/A/M Collaborative, supplemented the efforts of the MPSC and the Plant Engineering Division's planning staff.

The Site Master Plan had significant stakeholder involvement including outreach to several specific groups:

- BNL employees, visitors and guests
- BNL Users
- DOE Brookhaven Site Office (BHSO)

- Community Advisory Council
- Civic Association leaders and community representatives
- BNL Department Chairs and Division Managers

A web site, poster sessions, roundtable meetings, surveys, and formal presentations ensured effective communications.

The MPSC, with the support of S/L/A/M, reviewed the Laboratory's strategic science plan, as well as all stakeholder input, and assessed the ability of the current infrastructure to support the rational evolution of current programs and to accommodate new ones that might reasonably be expected to come to BNL. Based on these data, the MPSC developed a set of Planning Assumptions. Shortfalls in current infrastructure ("gaps") were discussed in terms of capability, condition, and location. From that, requirements were generated to meet the identified infrastructure goals.

Various options for filling the "gaps" were debated and evaluated at several MPSC – S/L/A/M workshops, all of which the Laboratory Director attended. From successive options/approaches selected planning proceeded from land use template, to functional site layout, to sitting of individual facilities. Pre-conceptual scoping of specific projects to meet the identified requirements followed thereafter.

A subcommittee of the MPSC took the next step in planning to decide the priority of the various projects. This was based on an assessment of the level of the project's contribution to meeting the Infrastructure Goals and Objectives and, where applicable, the need to make the location available for high-priority new construction. An estimated return on investment (ROI) was determined for each project.

Finally, for accomplishing the specific project, the most suitable funding source was evaluated that included operating funds (OE), General Plant Projects (GPP), General Purpose Equipment (GPE), line item construction and third party financing. The results of this planning work are shown in the Integrated Facilities and Infrastructure (IFI) crosscut.

## D.2.5 EM Life-cycle Baseline Preparation

The scope of the Brookhaven Environmental Management Completion Projects (BEMCP) includes both the removal of the Brookhaven Graphite Research Reactor (BGRR) graphite pile and biological shield, and the decommissioning of the High Flux Beam Reactor (HFBR). The HFBR decommissioning scope includes the near-term dismantlement and removal of the HFBR stack, fan house, ancillary buildings, contaminated underground lines, and the disposal of legacy waste. At the conclusion of this work, both reactor facilities are to be prepared by BNL for and transitioned to long-term surveillance and maintenance (S&M). The BEMCP also includes the regulatory close out of the two Areas of Concern for these reactor facilities in accordance with the tri-party Interagency Agreement signed by the DOE, United States Environmental Protection Agency and the New York State Department of Environmental Conservation. The BEMCP scope includes the preparation of materials and reports to support DOE review and approval of the Critical Decision (CD-4) close out milestone.

The BGRR is one of two Brookhaven Environmental Management Completion Projects (BEMCPs) that will be completed at the Brookhaven National Laboratory. The High Flux Beam Reactor (HFBR) project will be addressed in a separate Performance Baseline that will be finalized upon completion of the End State determination process.

As its prime DOE Office of Environmental Management contractor, BNL will have overall responsibility for completing the BGRR project.

The BGRR Performance Baseline provides a description of the work, cost plan and schedule to complete the remaining work included in PBS-CH-BRNL-0040. This Performance Baseline includes all of the work required to fulfill the DOE's responsibilities under the BGRR Record of Decision that was approved on March 17, 2005. This work includes:

- The removal of the graphite pile.
- The removal of the biological shield.
- Transportation and disposal of all project wastes.
- Installation of an engineered water infiltration barrier around the BGRR reactor building (i.e. Building 701).
- BGRR surveillance and maintenance through the end of FY2009.
- Regulatory closeout of the construction phase of the BGRR project.
- ES&H and management oversight and support of project activities throughout the period of performance.

At the conclusion of the BGRR project, the pile and graphite pile (presently designated as Building 702) will be removed from the BGRR reactor building (Building 701). The graphite pile will be completely removed, and the biological shield superstructure and upper bedplates will be removed to the 110'-0'elevation. A concrete pad will be placed over the footprint of the biological shield to provide shielding from residual radioactive material embedded in the remaining Building 701 structure.

Other Building 701 structures, systems and components will be disturbed only to the extent required to complete pile and biological shield removal. Collateral dismantlement of physical interferences is limited to various experimental balconies that are attached to the biological shield, the freight elevator, portions of the control rod drive mechanisms and portions of the Chemo-Nuclear experimental loop.

The balance of the Building 701 will serve as part of the engineered cap to prevent access to and prevent water infiltration to contaminated soil located below the building. The Building 701 structure will remain in place. All other structures, systems and components not disturbed during graphite pile and biological shield removal will also remain in place.

In preparation for transition of the BGRR to the DOE Office of Science and BSA's operating organization, a radiological survey of Building 701 will be performed. A Surveillance and Maintenance Manual will be prepared for DOE approval and regulatory concurrence that will set forth the requirements for periodically maintaining the remaining BGRR complex in accordance with DOE and BSA requirements. A comprehensive and formal plan will be used to guide the transition process, and an Exit Readiness Evaluation will be performed in accordance with BSA requirements prior to BGRR turn over to the BSA operating organization.

#### D.2.6 Other planning processes

The Tier I inspection process ensures the Laboratory's space is periodically reviewed and ES&H issues are identified for correction. Operational and exit readiness reviews ensure that when space is vacated or reused any existing legacy ES&H issues are documented and entered into the project's backlog. The space consolidation plan identifies projects that must be completed to allow consolidation of space and additional excess facilities made available for demolition. Each year various internal and external program assessments and reviews are undertaken to identify any additional infrastructure requirements that BNL's programs need for continuing efficiency into the future.

#### D.2.7 Prioritization

The processes described above generate infrastructure needs all of which are recorded in either BNL's ADS database or the maintenance database for smaller maintenance projects. The prioritization process for BNL's General Plant Projects (GPP) and Operations Funded Projects (OE) are described in the Project Prioritization, Programming, and Budgeting Process (3PBP) located as part of the BNL Standards-Based Management System. This system uses a combination of the following:

- Probabilistic risk, as determined either by the DOE Capital Asset Management System (CAMP) Scoring Criteria for Infrastructure projects or the Risk Prioritization Method (RPM) for ES&H issues. A team of subject matter experts from BNL and DOE-BHSO score the projects.
- Strategic risk as based on assessing the relevancy of the project to the various strategic planning documents described above, including the Site Master Plan, Laboratory Business Plan and the Laboratory Strategic Plan. Scoring is performed by the Consolidation team, composed of senior members from BNL and DOE-BHSO.

The combination score for final project selection is then presented to the Laboratory Policy Council which consists of BNL's senior managers. This final list then goes to BHSO for review. Adjustments are made, based on comments, with final resolution following discussions between BHSO and BNL's senior managers.

#### D.3 LAND USE PLAN

The BNL Land Use Plan contained in Appendix 1 was revised to reflect the current Site Master Plan and BNL's Strategic Plan.

#### D.4 EXCESS REAL PROPERTY

One of BNL's strategic infrastructure goals is to consolidate staff now occupying old wood buildings into more modern space. The construction of the new Research Support Building with its expected occupancy in October 2006 will allow major consolidation and the subsequent declaration of excess additional space. BNL has developed a space consolidation strategy as part of its Site Master Plan process, so that some 60-year-old wood buildings can be declared excess. Based on this plan, buildings which will be

declared excess in the next few years are 130, 134, and 459. Buildings that will be partially vacated due to staff occupying the new Research Support Building, and then consolidated back into are 129, 185, 355, and 703.

BNL continually reviews its real property needs. The FIMS is updated, as needed, to reflect the findings of these reviews. The assets are identified as follows:

- Operational assets are those which are active and with continuing use.
- Excess assets are those ones currently excess and non-operational, which if sufficient funds were available, would be demolished.
- Operational excess assets are those identified as potentially being excess in the future. They generally are tied to specific pending projects, which if implemented, would result in the asset entering excess status in the year shown.

For operational excess projects, the condition or project is listed that would result in it transferring to excess status. This information was used to update the IFI crosscut submitted earlier this year.

BNL's preference is to use funds from the DOE Excess Facilities Program funds to raze excess buildings as soon as they become available and delay demolishing building 650 and 650A, a project estimated at ~ \$6 M. Appendix 6 lists details of buildings to be declared excess, some of which are conditional. Examples of assets that are conditionally available to be demolished are those associated with the proposed alternately-financed project for user housing. If implemented, some existing apartments units could be demolished; they were identified and declared conditionally excess with dates matching the planned occupancy for the new housing.

In addition to the DOE-SC building program discussed above, the DOE-EM program plans to raze several buildings over the planning period; they also are discussed in Appendix 6.

#### D.5 LONG TERM STEWARDSHIP

#### D.5.1 Long Term Response Action (LTRA) Assets

BNL assets are owned by either the DOE's Office of Science (DOE-SC) or the DOE Office of Environmental Management (DOE-EM). Table D-1 shows those assets owned by EM which are part of the LTRA program that are expected to be turned over to DOE-SC in FY10. They can be categorized as follows:

- Active groundwater treatment plants. These assets are active building and OSF assets covered in the LTRA plan.
- Groundwater monitoring wells. These assets are active OSF assets covered in the LTRA plan
- Decontamination and decommissioning (D&D) projects. These are excess assets that EM does not plan to demolish and will require long-term monitoring.

**Table D-1 LTRA Assets** 

ID	Facility Name	Year Built	FIMS TYPE
GROUNDWATER TR	EATMENT PLANTS		
0516	Ground Water Pump Station (Middle Road)	2001	BUILDING
0517	Ground Water Treatment Facility	2001	BUILDING
0518	Ground Water Treatment Facility	1997	BUILDING
0519	Ground Water Pumping Station	1997	BUILDING
0521	Air Sparge / Soil Vapor Extraction System	1994	BUILDING
0539	WSB Ground Water Recovery Unit	2002	BUILDING
0598	Ground Water Treatment Plant	1998	BUILDING
0645	Well Control House	1997	BUILDING
0670	Sr-90 Pilot Ground Water Treatment Facility	2003	BUILDING
2360	OER Monitoring Wells	1995	OSF
2395	OER Pump & Treat Con (Off Site @ I.P.)	1998	OSF
2410	S. Boundary Pump & Treat Sys.(OU III)	2002	OSF
2415	Middle Road Groundwater Pump/treat	2002	OSF
2420	Western South Boundary Treatment Sys(539)	2002	OSF
2425	VOC Treatment System (B/96)	2002	OSF
2430	Sr-90 Treatment System (B/670)	2003	OSF
7133030231	Treatment Plants	1965	OSF
OS-1	Industrial Park Treatment System	2003	OSF
OS-3	LIPA Vault	2003	OSF
OS-4	Airport Treatment System	2003	OSF
OS-5	North Street Treatment System	2003	OSF
OS-5E	North Street East Treatment System	2003	OSF
OS-6	OU VI - (EDB) Plume Treatment System	2003	OSF
BGRR RELATED AS	SETS		
0701	BGRR	1949	BUILDING
HFBR RELATED ASS	SETS		
0750	High Flux Beam Reactor	1964	BUILDING
1090-HFBR	HFBR Vessel and Assoc. Systems	1964	OSF
0715	Stack Monitoring Station	1979	BUILDING

#### D.5.2 Program Overview

The DOE-EM will complete the clean-up mission at BNL in FY 2009. As mission elements are completed, the DOE-EM would like to turn over responsibility to DOE-SC for managing them under the LTRA program.

The DOE's policy is that LTRA responsibilities can only be transferred after the site's landlord (for Brookhaven, the Office of Science, DOE-SC) and the DOE-EM agree that the EM's mission at the site is completed, and that technical planning has established an LTRA operating baseline, describing the scope and operating costs for future LTRA work. According to the DOE's guidance "EM Completion: Transitioning LTRA Responsibilities", as part of the transition process, DOE-EM managers need to ensure that (1) the environmental condition of the facilities is clearly established and documented, (2) the receiving Program Secretarial Office (PSO) is sufficiently informed of the specific operation-, maintenance- or surveillance-requirements for all of LTRA, and (3) the PSO has adequate time to incorporate

associated out-year resource requirements into the future budget requests so the necessary resources are in place at the time of transfer.

The LTRA activities are grouped into three work packages:

- Long Term Environmental Operations, Safety, and Security (LEOSS)
- High Flux Beam Reactor (HFBR) LTRA
- Brookhaven Graphite Research Reactor (BGRR)

## D.5.2.1 Long Term Environmental Operations, Safety, and Security (LEOSS)

- Project Management, Administration and Implementation: This activity encompasses all of the direct LEOSS's level of effort in direct labor necessary to undertake the work scope including project management and reporting, field oversight, reporting, and communications to stakeholders. It also covers the sitesteward function for managing LEOSS work, acting as the regulatory and stakeholder point-of-contact on LEOSS issues and responsibility for delisting the BNL site from the National Priorities List (NPL).
- Groundwater Monitoring, Reporting, and Information Management: This activity includes all of the water quality sampling and analysis required to monitor contaminant plumes and remediation system performance achieved through 26 groundwater monitoring programs. It also includes measuring groundwater elevations and data mapping. This scope envelopes maintenance of monitoring wells and sampling equipment. Monitoring activities include waste disposal associated with purge water generation including off-site disposal. Further, this activity also entails internal and external reporting to the DOE, regulators, and other stakeholders, and is a key component of BNL's long-term groundwater remediation program.
- **Groundwater Remediation Operations and Maintenance:** Under this activity the 17 groundwater treatment systems will be operated, maintained, and monitored.
- Surface Projects, Landfills and Peconic River: This work package covers all work activities associated with monitoring, maintaining and reporting on OU I Areas of Concern (AOCs) and the Peconic River.

#### D.5.2.2 DOE Transition

This activity includes the activities required to transfer the LEOSS responsibilities from EM to SC in accordance with the DOE-SC and DOE-EM Terms and Conditions for Site Transition.

#### D.5.2.3 HFBR LTRA

The scope of work for FY 2010 through FY 2059 encompasses surveillance and maintenance (S&M) work required to ensure that Building 750 (HFBR) and its associated facilities remain safe and stable during the LTRA period. This includes: radiation and environmental monitoring; testing, inspecting, and maintaining/repairing of essential equipment, and verifying the physical and environmental conditions throughout the HFBR

complex. Additionally, this work package (WP) involves controlling the building's environment; removing any solid and liquid wastes generated during LTRA; and periodically refurbishing the HFBR.

#### D.5.2.4 BGRR LTRA

The scope of work covers FY 2010 through FY 2059. After removing the BGRR pile and bioshield, periodic surveillance, monitoring and maintenance will be conducted to ensure personnel safety, evaluate potential drivers to the ground water, and ensure that the environment is not being degraded because of BGRR deterioration. This WP includes routine radiological, industrial hygiene and personnel safety surveillance, sampling and analysis of groundwater monitoring wells, along with routine maintenance, general upkeep and planned renovations to the facility.

#### D.5.2.5 Cost Plan

The LTRA work scope and cost plan were updated during the spring 2006 with the Baseline Change Proposal (BCP) EM-06-02. The latter includes modifications to reflect the recent understandings reached by the DOE and regulators for active Sr-90 remediation and increased long-term monitoring of the Peconic River. With the addition of HFBR LTRA and a period of performance through FY75, the LTRA's cost plan in this Baseline is now all-inclusive. Table D-2 summarizes the proposed DOE-EM funding (\$K) The DOE-EM will retain management and budget responsibility of these work packages through the end of 2010. The DOE-SC will assume management and funding of LEOSS from DOE-EM in 2011. This draft Baseline assumes that BNL will manage the HFBR and BGRR D&D projects. BNL's construction rates, burdens, and overheads historically used for the BGRR were applied to all of the work in this draft Baseline. A performance baseline was developed during the summer of FY05 to better define the costs of this scope.

Table D-2 Projected Funding 2007 – 2010, \$M

	FY2007	FY2008	FY2009	FY2010
BGRR LTRA	-0-	-0-	-0-	290
HFBR LTRA	-0-	-0-	-0-	207
LEOSS	6,389	6,460	6,680	6,825
Total	6,389	6,460	6,680	7.322

#### D.6 RPV ESTIMATES

Table D-3 below shows the Replacement Plant Value (RPV) estimates for FY08-FY17. They have been revised from the values submitted in the IFI crosscut, that was submitted with the budget, based on the TYSP guidance for FY 07- FY17. The expected additions and deletions are detailed in Table D-4.

Table D-3 RPV Analysis By FY

FISCAL YEAR	INITIAL RPV, \$	ADJUSTMENT, \$	FINAL RPV, \$
06			1,295,000,000
07			1,329,226,987
08			1,461,418,057
09	1,461,418,057	43,345,926	1,504,763,983
10	1,504,763,983	78,528,735	1,583,292,718
11	1,583,292,718	36,415,733	1,619,708,450
12	1,619,708,450	37,253,294	1,656,961,745
13	1,656,961,745	208,110,120	1,865,071,865
14	1,865,071,865	42,896,653	1,907,968,518
15	1,907,968,518	40,624,914	1,948,593,432
16	1,948,593,432	36,860,615	1,985,454,047
17	1,985,454,047	41,565,443	2,027,019,490

Table D-4 RPV Adjustments By FY, in dollars

FY09 Adjustments			Notes
Escalation	2.3%	33,612,615	
Demo	B/208	(2,440,867)	
Demo	B/197A	(475,393)	
Demo	B/933B	(66,335)	
Demo	B/934	(104,302)	
Demo	B/193	(1,036,252)	
Demo	B/86	(1,837,729)	
Demo	B/422A	(447,426)	
Demo	B/628	(50,330)	
Demo	B/649	(93,471)	
Demo	B/482	(419,904)	
Demo	B/527	(1,036,163)	
Demo	B/96	(940,100)	
Add	B/751	481,582	Transfer from EM
Add	B/400	18,200,000	RSB Phase I
		\$ 43,345,926	
F)/40 A	Paraton anta		
	djustments	24 000 570	
Escalation	2.3%	34,609,572	OFN
Add	B/735	53,000,000	CFN
Demo	B/130	(3,589,856)	
Demo	B/134	(5,490,981)	
		\$ 78,528,735	
FY11 Δα	djustments		
Escalation	2.3%	36,415,733	
	-	\$ 36,415,733	

	<b>FY12 Adjustments</b>	
Escalation	2.3%	44,817,649
		\$ 44,817,649
	FY12 Adjustments	
Escalation	2.3%	37,253,294
		\$ 37,253,294
	FY13 Adjustments	00.440.400
Escalation	2.3%	38,110,120
Add	NSLS II	170,000,000
		\$ 208,110,120
	FY14 Adjustments	40.000.050
Escalation	2.3%	42,896,653
		\$ 42,896,653
	FY15 Adjustments	
Escalation	2.3%	43,883,276
Demo	B650/B650A	(3,258,362)
Demo	D030/D030A	\$ 40,624,914
		Ψ +0,02+,31+
	FY16 Adjustments	
Escalation	2.3%	44,817,649
Demo	B/492,B/459	(7,957,034)
		\$ 36,860,615
	FY17 Adjustments	
Escalation	2.3%	45,665,443
Demo	B/811	(4,100,000)
		\$ 41,565,443

#### D.7 MAINTENANCE

Table D-5 below, shows the expected spending on maintenance. BNL is committed to meeting the required 2.0% sustainment spending level. The value is based on the RPV guidance provided as part of the TYSP guidance.

Table D-5 Proposed Maintenance Expenditures BY FY

FISCAL YEAR	RPV BASIS, \$	SC GOAL MAINTENANCE, \$	BNL PLANNED MAINTENANCE, \$
08	1,461,418,057	29,228,361	29,228,361
09	1,583,865,003	31,677,300	31,677,300
10	1,669,193,898	33,383,878	33,383,878
11	1,703,485,358	34,069,707	34,069,707
12	1,738,565,521	34,771,310	34,771,310
13	1,944,452,528	38,889,051	38,889,051
14	1,985,074,936	39,701,499	39,701,499
15	2,026,631,660	40,532,633	40,532,633
16	2,069,144,188	41,382,884	41,382,884
17	2,112,634,504	42,252,690	42,252,690

Appendix 4 lists the proposed maintenance projects as shown on the IFI Crosscut.

#### D.8 DEFERRED MAINTENANCE REDUCTION

Table D-6 shows the tracking of the deferred maintenance (DM) backlog. BNL's strategy for reducing it is to meet the minimum DM reduction funding level as requested by the DOE. The overhead rate and/or the space charge will be raised to provide the required funding. In addition, the backlog will be reduced by eliminating unneeded building space. The IFI Crosscut, located in Appendix 4, cites specific projects. BNL does not separate maintenance projects and deferred maintenance projects, as they both come from the same prioritized backlog list and both are funded from the same overhead accounts. Since the assumption is that the 2.0% MII maintenance spending level will achieve sustainment, additional overhead funds applied to the maintenance project backlog should reduce it. Thus, the BNL's deferred maintenance value will fall down by the corresponding amount less the effects of escalation of the backlog due to increases in construction costs.

Table D-6 Deferred Maintenance Reduction (DMR) Plan (all values in \$k)

FISCAL YEAR	INITIAL DM	SC DMR FUNDING GOAL	PLANNED DMR FUNDING	ESC @2.3%	NEW DM	ACI
05	251,650	-	-	5,788	257,438	0.81
06	257,438	750	1,750	5,921	261,609	0.80
07	261,609	5,940	6,940	6,017	260,686	0.80
80	260,686	10,800	11,800	5,996	254,882	0.83
09	254,882	15,750	25,750	5,862	234,994	0.85
10	234,994	20,700	30,700	5,405	209,699	0.87
11	209,699	20,700	21,700	4,823	192,822	0.89
12	192,822	20,700	21,700	4,435	175,557	0.90
13	175,557	20,700	21,700	4,038	157,895	0.92
14	157,895	20,700	21,700	3,632	139,826	0.93
15	139,826	20,700	31,700	3,216	111,342	0.95
16	111,342	20,700	31,700	2,561	82,203	0.96
17	82,203	20,700	21,700	1,891	62,394	0.97

#### **Notes**

- 1. Assumption that GPP program impacts DMR by \$1M / year
- 2. In FY09 & FY10, planned DMR includes the impact of Science Lab Rehab I
- 3. In FY15 & FY16, planned DMR includes the impact of Science Lab Rehab II

#### D.9 RECAPITALIZATION & MODERNIZATION

A continuous process of recapitalization and modernization is required to ensure that facilities support programs to meet the changing needs of the DOE's missions. Further facilities must be modernized to meet new environmental, safety and heath requirements. General Plant Projects (GPP) is the primary funding source to meet these emerging needs. Chart D-1 shows the trend of the net GPP purchasing power. While the actual funding shows a slow increase the net purchasing power has sharply declined from FY86 – FY01 and has somewhat leveled off beginning in FY02. This occurred during a time where few of the 50-60 year-old facilities have been replaced, thus further increasing the need for modernization funds.

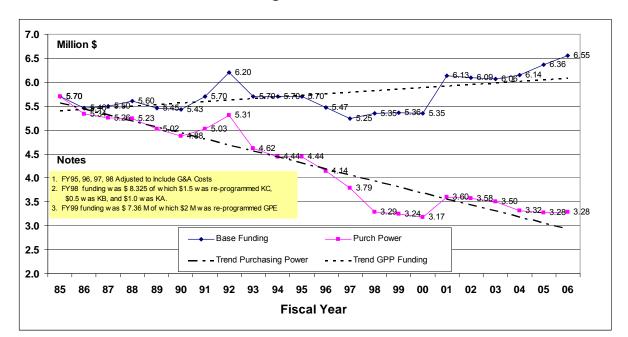


Chart D-1 GPP Trend- Net Purchasing Power

#### D.9.1 Institutional General Plant Projects (IGPP)

DOE Order 430.1B Attachment 6 defines the criteria for GPP projects. One of them stipulates that the program will have the contractor's Chief Financial Officer or Comptroller certify that:

- Indirect funds will not be utilized for IGPP at the expense of maintenance or any other essential facilities program.
- The overall indirect budget will not increase to fund IGPP requirements; funds can be reallocated within the indirect budget for this.

Facing the additional requirements to fund maintenance and reduce deferred maintenance, BNL would have to significantly increase its overheads rates to generate additional funds for IGPP. However, such actions are not allowed by DOE Order 430.1B. Therefore, BNL does not anticipate any IGPP projects during the planning period. If program funding were to significantly rise above the level of general escalation, it may be feasible for BNL to reconsider using IGPP.

#### D.9.2 Line Items

Few of BNL's 50-60 year-old facilities have been replaced and most of the major lab/office buildings are approaching 50 years-old. Appendix 5 shows the requirements for line items.

# D.9.3 General Plant Projects (GPP)

Appendix 4, the IFI Crosscut contains BNL's GPP plan modified from the IFI Crosscut, submitted with the budget, to reflect the funding targets provided in the TYSP guidance. Attachment 8 shows the FY08 GPP plan recently submittal to the DOE Office of Nuclear Physics. The plan has three differing funding scenarios: a flat budget, 3.5% increase over FY07 budget, and unconstrained funding.

#### D.10 SPACE BANK ANALYSIS

Table D-7 gives the planned additions and removals and their effect upon the space bank. The revised Excess Facilities Program plan for the FY07 – FY12 will fund the removal of contaminated equipment in building 650 in FY07, and then from FY10-15 it will fund the removal of the remaining building. For FY08 and FY09, based on the space consolidation plan, buildings 130 and 134 would be demolished. The plan for the Research Support Building project is to demolish building 96 as part of the space offset.

Table D-7 Space Bank Analysis, square feet (SF)

Fiscal Year	Expected Additions	Expected Removals	Net Change	Available Space	Notes
05	3,054	17,832	(14,778)	173,946	
06	-	18,452	(18,452)	192,398	
07	65,000	5,591	59,409	132,989	Add RSB, Demo B/96
08	94,500	15,962	78,538	54,451	Add CFN, Demo B/130
09	-	30,593	(30,593)	85,044	Demo B/134
10	-		-	85,044	
11	-		-	85,044	
12	350,000		350,000	(264,956)	Add NSLS-II
13	-		-	(264,956)	
14	-		-	(264,956)	
15	-	13,654	(13,654)	(251,302)	Demo B/650,650A
16	-	15,547	(15,547)	(235,755)	Demo B/492, B/459
17	-	1,906	`(1,906)	(233,849)	Demo B/811

This analysis shows that if the NSLS-II project is funded and BNL selected as the host site, a waiver request will be needed by FY12 to offset the construction of new space. Additional facilities may be identified as excess before then, thus offsetting some of the required waiver space. In addition, if NSLS-II is constructed at BNL, the existing NSLS facilities would be reused for other purposes, allowing some further consolidation out of 60-year old buildings. This will require the D&D of the existing accelerator and some alteration of existing space for facilitate reuse. Several options for reuse will be explored:

- Consolidation of the EENS Directorate, particularly those groups now located in 60year-old wood buildings such as 179, 197, 475, and 526.
- Relocation of the research library and archive storage facilities located in buildings 477 and 494.

These possibilities will allow the subsequent demolition of over 100,000 SF of space.

#### D.11 SITE ALTERNATE INVESTMENT PLAN

To better address the vision and goals of the Laboratory, the following funding strategy was proposed. The rationale for it is outlined in the footnotes.

Table D-8 Proposed DOE-SC Alternate Investment Strategy (All Values in \$k)

FY	PLANNED SLI	ALTERNATE SLI	PLANNED GPP	ALTERNATE GPP	PLANNED EFD	ALTERNATE EFD	NOTES
07	4,600	4.600	7.070	7.070	697	697	
08	8,200	8,200	7,230	7,230	700	700	4
09	5,200	5,200	7,400	11,000	700	700	1,4
10	0	3,097	7,540	11,550	700	700	1,2,4
11	0	8,000	7,740	12,127	700	1,800	1,4
12	0	7,763	7,920	12,733	700	3,000	1,4
13	4,000	2,144	8,316	13,370	700	2,000	1,4
14	16,000	8,000	8,732	14,039	700	700	1,4
15	0	3,956	9,169	14,741	700	700	1,4
16	0	4,000	9,627	15,478	700	700	1,3,4
17	0	16,000	10,107	16,252	700	700	1,4
Total	38,000	70,960	90,851	135,590	7,697		

**Note 1:** The increases in GPP of the past ten years have not kept up with inflation to the point where the current purchasing power of the GPP program is about 30% of what it would have been had the program escalated accordingly. The proposed increase with subsequent inflationary increases will provide capital to meet BNL's goal of modernizing its facilities, bringing them to current standards. Modernization also reduces the deferred maintenance backlog, although not on a one-for-one basis.

**Note 2:** Brookhaven Computing Facility Expansion. This facility, scheduled for FY 10-12, will provide a permanent solution to our expanding need to support its multi-program computing infrastructure.

**Note 3:** Chilled Water Phase II. The facility, scheduled for FY13-15, will expand and strengthen BNL's chilled water infrastructure, allowing for the addition of more facilities to the central plant, allowing more efficient system operation and improving the reliability of the existing plant.

**Note 4**: Rescheduled Renovate Science Labs – Delaying the needed Phase II effort will allow available funds to address higher BNL priorities under the constrained budget environment.

**Note 5:** The excess facilities demolition plan proposed by DOE-SC, and as indicated in the IFI crosscut, proposes spreading out the D&D funding for the building 650/650A complex. This project will be extremely complex to plan and organize so that in spreading out the funds, substantial amounts may have to be carried between years to ensure that all tasks are accomplish. The initial estimate, which will require substantial review during the continued planning phase, was not based on this type of scenario. Accelerating the funding, see FY 11-13, could provide a more reasonable approach to the project.

#### D.12 PERFORMANCE INDICATORS AND MEASURES

The following are the contract performance measures for FY06, as found in Appendix B of the Laboratory's Prime Contract.

Performance Goal 7 Sustain Excellence in Operating, Maintaining, and Renewing the Facility and Infrastructure Portfolio to Meet Laboratory Needs

THE CONTRACTOR PROVIDES APPROPRIATE PLANNING FOR LABORATORY FACILITIES AND INFRASTRUCTURE NEEDS REQUIRED TO EFFICIENTLY AND EFFECTIVELY CARRY OUT CURRENT AND FUTURE S&T PROGRAMS, AND MANAGES DOE FACILITIES AND INFRASTRUCTURE IN A COST EFFECTIVE MANNER THAT ENSURES THEIR SAFE AND RELIABLE OPERATION CONSISTENT WITH PROGRAM MISSIONS NEEDS AND DOE STEWARDSHIP REQUIREMENTS.

The weight of this Performance Goal is 15%.

**Performance Objective 7.1** - Manage Facilities and Infrastructure in an Efficient and Effective Manner that Optimizes Usage and Minimizes Life Cycle Costs The weight of this Performance Objective is 50%.

#### **Performance Measure 7.1.1**

The management of real property assets to maintain effective operational safety, worker health, environmental protection and compliance, property preservation, and cost effectiveness while meeting program missions, through effective facility utilization, maintenance and budget execution

**Performance Target 7.1.1.1** Contract No. DE-AC02-98CH10886 Modification M138 50

Maintain balanced priorities through effective utilization of the BNL Project, Planning, Programming and Budgeting Process (3PBP) project tracking and prioritization process. Have the Consolidated Unfunded Requirements List (CURL) funded projects approved by the BNL Policy Council in a timely manner.

#### **Performance Measure 7.1.2**

The maintenance and renewal of building systems, structures and components associated with the Laboratory's facility and land assets

#### Performance Target 7.1.2.1

The Laboratory will maintain reliable electrical and building infrastructure. (Use existing infrastructure reliability index.)

#### Performance Target 7.1.2.2

The Laboratory's Maintenance Investment Index will meet DOE goals [e.g., MII ≥ 2.0].

**Performance Objective 7.2** - Provide Planning for and Acquire the Facilities and Infrastructure Required to Support Future Laboratory Programs

The weight of this Performance Objective is 50%.

#### Performance Measure 7.2.1

Integration and alignment of the Ten Year Site Plan to the Laboratory's comprehensive strategic plan

#### Performance Target 7.2.1.1

BNL's Ten Year Site Plan is aligned with BNL's Business Plan. BNL's Project, Planning, Programming and Budgeting Process (3PBP) outcomes (e.g., projects approved by Policy Council) are aligned with BNL Business Plan. BNL will continue to study electric power supply options beyond the current three-year NYPA contract.

#### Performance Measure 7.2.2

Efficiency in meeting Cost and Schedule Performance Index for construction projects (when appropriate)

#### Performance Target 7.2.2.1

BNL manages Line Item and GPP projects effectively to agreed scope, schedule, obligation and cost baselines (Use existing Project Management Measure process.).

The FY07 performance measures are currently under development. It is anticipated that the FY06 measures will remain and that a new measure for deferred maintenance reduction will be added.

#### D.13 ENERGY MANAGEMENT

#### D.13.1 Approach to Energy Management at BNL

BNL established its Energy Management Group in 1979. They work to reduce BNL's energy use and costs by identifying and implementing cost-effective energy-efficiency projects, monitoring energy use and utility bills, and assisting in obtaining the least expensive sources of energy. The group also is responsible for developing, implementing, and coordinating of BNL's Energy Management Plan and works with the DOE-BHSO to develop the Energy Performance Agreements.

BNL and DOE-BHSO annually develop an Energy Performance Agreement. The most recent one addresses the requirements of the 2005 Energy Policy Act. However, some of the provisions will be difficult to achieve at individual sites. The Act states that the goals are intended to be met using cost-effective measures; clearly there will be circumstances where that will not be possible.

#### D.13.2 The Energy Management Program at BNL and Coordination with 10-Year Plan

Several aggressive goals are included in the Energy Policy Act of 2005:

- Annual energy reduction per square foot goal of 2% from FY2006 FY2015
- Electric metering in federal buildings by 2012
- Procurement of Energy Efficient Products

- Design new buildings to 30% below AHSRAE standard unless proven to not be lifecycle close-effective
- Requirement of renewable electricity consumption

BNL's TYSP includes the demolition of old, inefficient wood-frame buildings, with the construction of new, modern, efficient ones. These actions alone will contribute towards meeting the energy reduction goals. The TYSP also involves replacing older, inefficient chillers and other cooling and heating equipment with more efficient units.

BNL is continuing to evaluate a Combined Heat and Power (CHP) facility and a wind turbine project that would greatly reduce greenhouse gases and increase energy efficiency. Any project will require careful coordination with other planned site development. Both of these potential projects, if determined to be economically viable, are long-term (20+ year contracts), and will be included as part of BNL's long-term planning. A discussion of these projects, even if it is determined not to go forward, will be included with the TYSP.

BNL's Energy Management Program requires electric metering for all new facilities. Further, all of BNL's existing buildings, as defined by the Energy Policy Act, are metered.

# D.14 LEASING AND THIRD PARTY / NON FEDERAL FUNDED CONSTRUCTION OF NEW BUILDINGS

#### D.14.1 Leasing

BNL does not have any leases of 10,000 SF or above.

#### D.14.2 Third Party / Non-Federal Funded Construction of New Buildings

The following outlines BNL's one project that was proposed for non-federal funding:

#### **BNL Housing Replacement Project**

**Purpose:** Replaces the equivalent area of temporary wood-frame housing

units constructed by the US Army during WWII that are past their

economic and service life.

**Scope:** Construct 72 townhouse style units varying from 1-4 bedrooms on

a vacant 12-acre site at the periphery of the BNL campus,

adjacent to the existing apartment units.

Square Footage: 85,000

Total Estimated Cost: \$14 – 15 Million

Status: Acquisition Strategy (CD-1), Ground Lease, and Facility Lease

documents were submitted to DOE-BHSO and are awaiting

further review.

**Schedule:** Summer 2008 occupancy

# APPENDIX 1 LAND USE PLAN

#### 1. CURRENT LAND USE

The Laboratory site development has been influenced by the buildings and utilities inherited from the former Camp Upton. The general location and arrangement of the roads, buildings, and utilities are a legacy of the former army base. The physical plant has been gradually upgraded over the last 60+ years, but many of the original Army elements are still in use and will continue to be accommodated in future planning.

To the north and west of BNL, the area is largely wooded, privately owned, and zoned for residential development. The area between Upton Road, William Floyd Parkway, and Princeton Avenue will be kept as a buffer zone with forest and grassy areas. The anticipated expansion of major Laboratory buildings is to the east (NSLS-II) and in the RHIC area in the north central area of the site. BNL's holdings to the east are primarily woodlands and wetlands and plans are to leave them in their natural state for the foreseeable future. Part of this area has been dedicated as the Upton Ecological Research Reserve. The Center for Functional Nanomaterials is now under construction on a former developed site. The Research Support Building is under construction in the core area of the site, also on previously developed land. Therefore, no impact on land use will occur.

Most of BNL's principal facilities are located near the center of the site. The developed area is approximately 1,650 acres of which about 500 acres were originally developed for Army use. Approximately 200 acres are occupied by various large specialized research facilities. Outlying facilities occupy about 550 acres; these include the sewage treatment plant, research agricultural fields, housing, and fire breaks. The balance of the site is largely wooded.

At present, there are 359 buildings in use with a total gross floor area of approximately 4.1 million square feet, of which 860,000 million square feet is accelerator space. Two new buildings are under construction totaling 159,000 square feet, and six building totaling 19,000 square feet are scheduled for demolition this year. Permanent buildings constructed since 1947 account for about 75% of the floor space of the Laboratory. There is a 50-50 mix of concrete-block masonry and wood structures. Approximately 920,000 square feet is comprised of World War II wood structures and wood frame postwar additions, which currently are being used for housing. Building uses include the following:

- High-bay industrial type facilities with overhead cranes
- Research facilities for biomedical, chemical, physics, and laser users, and scientific and technical libraries
- Offices
- Fabrication facilities, including machine shops and craft shops
- Commercial facilities, including post office, bank, and gas station; and
- Recreational facilities, including tennis courts, swimming pool, and gymnasium.

The total road system consists of 29 miles of paved roads and 14 miles of dirt and gravel roads. There are approximately 83 acres of paved areas and approximately 4,000 parking spaces.

The rich history of the BNL site has resulted in several areas and structures being identified as cultural resources, (e.g., historically significant). The BNL Cultural Resource Management Program is responsible for ensuring that the Laboratory fully complies with the numerous cultural resource regulations. Three structures/sites were determined to be eligible for listing on the National Register of Historic Places: the World War I trenches associated with Camp Upton, the BGRR complex, and the HFBR complex.

Several networks of trench-warfare training earthworks are scattered through the forests at BNL. One of the more distinct trench networks clearly follows the layout depicted in the 1919 Army Field Manual. Last used by many of the 30,000+ soldiers training at Camp Upton in 1918-1919, the BNL trenches may be some of the only surviving examples of World War I earthworks in the United States.

The BGRR was the first nuclear reactor constructed to investigate the peaceful use of the atom. While much of this facility may be dismantled as part of the decommissioning project, its historic significance has been preserved through production of a history video and establishment of a records archive. The silver dome of the HFBR has been a distinct architectural landmark on the BNL site since the early 1960s.

Additional cultural resources include the following: buildings designed by renowned architects (Berkner Hall, and the Chemistry Building); house sites dating to the early 1800s; scientific equipment displays; unique scientific study areas (Gamma Forest site); and structures representative of the Civilian Conservation Corp era (Building 30) and WW II (Building 120). These and other culturally significant assets are managed through the Cultural Resources Program, so that they remain available for public and scholarly interpretation.

The Cultural Resource Management Plan for BNL (BNL-73839-2005) (CRMP), which guides the management of all of the Laboratory's historical resources, was approved by the DOE in March 2005. The CRMP identifies the Lab's historic resources, as well as specific management strategies and associated administrative processes to ensure compliance with regulatory requirements. These management strategies, along with maps identifying sensitive cultural resource areas, are used to facilitate BNL land-use planning processes. Aspects of the cultural resource strategies have also been integrated into various administrative planning tools. The CRMP is designed to be a living document that includes tasks and goals that are periodically assessed and revised.

The Land Use process categorizes current land use into the following categories:

- Open space/wilderness including protected wildlife and critical habitats, scenic vistas
- Industrial/commercial e.g., research and development facilities, offices, manufacturing plants, rail yards, staging areas, power plants, utility systems, and waste management facilities
- Residential e.g., permanent and temporary housing, dormitories
- Agricultural e.g., farming, grazing, and aquaculture
- Recreational including passive and active uses
- Native American including traditional, cultural, and religious uses.

Of these potential six categories, four were considered applicable for the BNL site; open space, industrial/commercial, agricultural, and residential. Figure E-1 shows the current land uses of the BNL site "zoned" into these categories.

#### 4.2.1 Open Space

Open space encompasses approximately 75% of the site area, which is mostly in its natural state with the exception of fire breaks, utilities' right of ways, recreation fields, and environmental monitoring wells and stations. This area includes floodplains and wetlands. These floodplain areas border the headwaters of the Peconic River in the northern area of the site, while the wetlands are predominantly in the eastern section of the site. The Laboratory facilities, with the exception of portions of the RHIC ring, do not encroach on the one-hundred-year floodplains or wetlands. Some 30 species of mammals and 180 species of birds have been recorded in the open spaces. The open space surrounding the developed central area of the site forms a buffer zone for the industrial/commercial land use areas.

#### 4.2.2 Industrial/Commercial

The designated national user facilities—the Relativistic Heavy Ion Collider (RHIC), Alternating Gradient Synchrotron (AGS), National Synchrotron Light Source (NSLS), Tandem Van de Graaff, Accelerator Test Facility (ATF), Scanning Transmission Electron Microscope (STEM), and NASA Space Research Lab (NSRL) serve the scientific user community from both the United States and abroad and are currently the centerpieces of the industrial/commercial land use area. BNL is constructing an additional user facility, the Center for Functional Nanomaterials (CFN). Approximately 7.5 acres of Laboratory site is leased to the U.S. Department of Commerce for the NEXRAD weather radar facilities. These facilities are part of a National Weather Forecasting Network operated by the National Oceanic and Atmospheric Administration (NOAA). Other facilities housing scientific departments, scientific support divisions, and support divisions are also within this industrial/commercial area. With the exception of the Sewage Treatment Plant and the Waste Management Facility, the industrial/commercial facilities form the developed central area of the site.

The majority of the Laboratory's buildings are located in the industrial/commercial area. At present, 35 wooden buildings and 264 portable structures provide temporary space. These structures and wooden buildings are planned to be replaced in the future by permanent facilities. The existing facilities of the site's core area can broadly be characterized into four functional zones: support services, research machines, physical sciences laboratories, and life sciences laboratories. This functional layout was influenced by the layout of the basic infrastructure, utilities, and other services.

The initial infrastructure and utility systems supporting the industrial/commercial functions were installed by the U. S. Army as part of Camp Upton. Since 1947, the Laboratory has made extensive additions and has modernized the systems to meet the needs of the expanding and changing research programs. The utility systems consist of steam, chilled water, compressed air, potable and process water, sanitary and storm wastewater, electric power, and telecommunications.

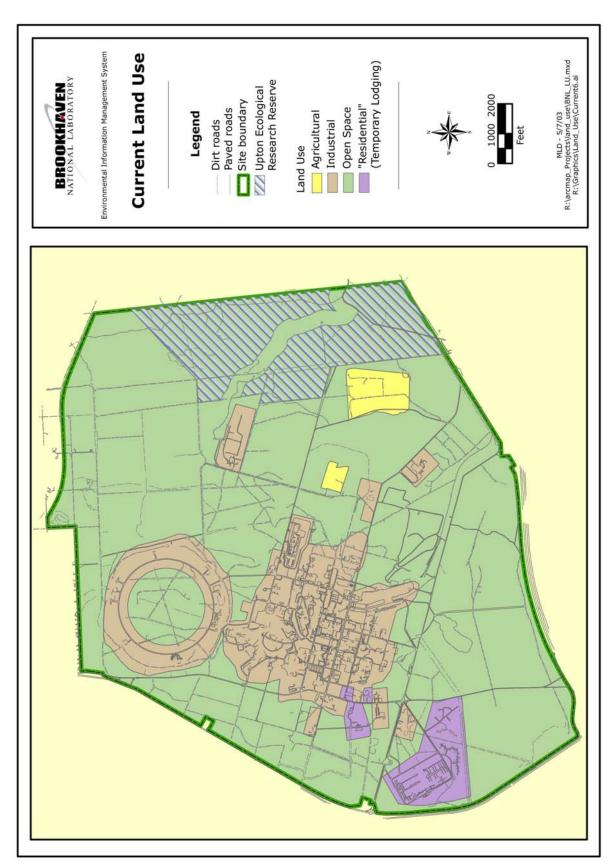


FIGURE E-1 Current Land Use

## 4.2.3 Agricultural

Approximately 70 acres of the site are used for growing crops, mainly corn, for biological research. However, other crops have been grown in the past and are likely to be grown in the future. These are located in the eastern area of the site and are surrounded by natural vegetation and open space.

#### 4.2.4 Residential

The Laboratory faces increasing demands to accommodate both U.S. and foreign users, visitors, and other staff with temporary appointments at the Laboratory. The housing inventory, largely inherited from the Army, is composed of summer cottages, mobile homes, apartments, efficiencies, guest rooms, dormitory rooms, and houses. Approximately 170 acres are designated for this purpose. The 26 wood buildings used for apartments, dormitory structures and the guest rooms building are Army buildings converted for residential use. In addition there are 30 summer cottages built in 1968. The bulk of this residential area lies in the southwest segment of the site. A natural growth of scrub oak and pine surrounds the residential complex which consists of the apartment area, cottages, efficiencies, and BNL's child development facility. The growth in research and education programs and conference activity continues to increase the need for additional housing and conference facilities.

#### 4.3 FUTURE LAND USE

The Laboratory has in place a Site Master Plan, produced in 2000, and updated in 2004. Scientific initiatives are identified in the BNL Strategic Plan and the Business Plan. Specific areas of the site have been designated and are held in reserve for future programmatic and infrastructure development initiatives to ensure BNL remains aligned with DOE's vision for the future. Planning efforts aim to optimize the physical plant to support the needs of BNL as a forefront scientific research institution. The planning process addresses the need for new facilities to meet emerging research needs while making maximum use of existing facilities and assets. Planning for future land use is accomplished through meetings, program reviews, interaction with DOE, and contributions from Laboratory staff, collaborators, and external stakeholders.

As part of the Master Plan development process, the Laboratory has defined sustainable development priority areas. These priorities address the suitability for future development. Figure A1-2. The Laboratory will continue to fulfill its mission of constructing and operating large experimental facilities that encourage the participation and support of the outside user communities (scientists and engineers from the United States and abroad) to maintain U.S.'s pre-eminence in basic research. The planned research facilities, when built, will substantially increase the number of visitors and users.

It is BNL policy to minimize the generation of hazardous and radioactive waste and potential impacts of associated operations on the environment. Activities which occurred in the 1940s, 1950s and 1960s created several areas of environmental concern that are being addressed. The process of systematically identifying and characterizing these areas for remedial actions has been ongoing for some time. These actions, which are part of the

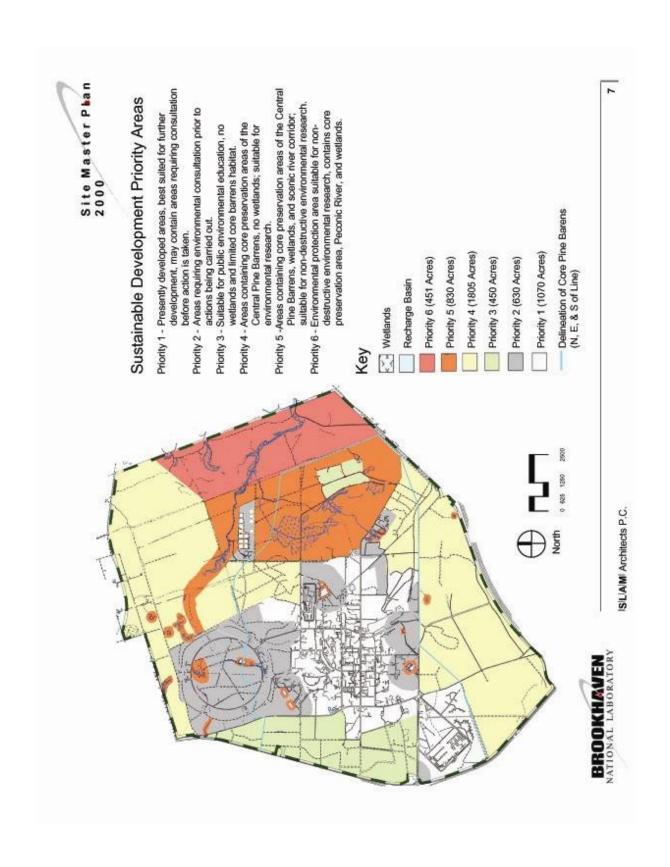


FIGURE E-2 Sustainable Development Priority Map

overall Environmental Restoration program, will influence the proposed future land uses for the site. In addition, BNL has compiled a list of legacy environmental issues, not part of the Environmental Restoration program. Several of these issues will restrict land use until cleanup can be done. It has also been the Laboratory's policy to minimize the impact of development on the environment. The Laboratory's planning efforts also consider the goals of the Pine Barrens Plan, the Special Groundwater Protection Plan, and the L.I. Comprehensive Wastewater Management Plan.

The Laboratory plans to preserve as much area as possible in its natural state while carrying out its mission to support the DOE through leading-edge user research facilities, research and technology development, educational efforts, and industrial involvement. In November 2000, DOE designated 530 acres of BNL property as the Upton Ecological and Research Reserve in order to protect a unique ecosystem of Pine Barrens forests and wetlands, and foster ecological research and educational opportunities.

The BNL site will continue to accommodate the scientific missions of the Laboratory as currently envisioned for at least the next twenty years. The future development of the site is based on the continued need for large, complex research user facilities. The Laboratory must continue to improve existing facilities to maintain state-of-the-art capability and is planning to build, during the next decade, the next generation of user facilities.

Facilities required to house proposed and planned scientific initiatives will increase the Laboratory's developed areas. Figure E-3 shows the future land uses areas "zoned" as industrial/commercial, open space, agricultural, and residential. Infrastructure must support the new research initiatives. Rehabilitation of most utilities and some increases in plant capacity are planned.

#### 4.3.1 Open Space

Open space, which includes the undeveloped area may be reduced 10-15% due to construction of scientific research facilities currently under evaluation including NSLS-II, JPSI, and the electron ring for the QCDLab. Further land development may be required to accommodate a consolidated Plant Engineering Complex, proposed in the Site Master Plan. All remaining undeveloped areas are planned to remain in their natural state. The floodplain areas are not likely to be affected. In the unlikely event that the floodplain area must be encroached, plans to minimize impacts and accommodate exceptional events such as a "One-Hundred-Year" storm will be developed.

#### 4.3.2 Industrial/Commercial

In the Industrial/Commercial Land Use category, specific areas are held in reserve for future programmatic and site development initiatives. In general, the areas to the north (RHIC expansion) and east (NSLS-II) of the central developed area may be developed to contain future major research facilities. The Laboratory plans to construct new facilities and consolidate out of WWII facilities into "program-centered" departmental and divisional complexes and several multi-discipline facilities. These complexes will be accommodated in the currently developed area containing the industrial/commercial facilities. It is anticipated that additional industrial/commercial type facilities will be required for these new endeavors.

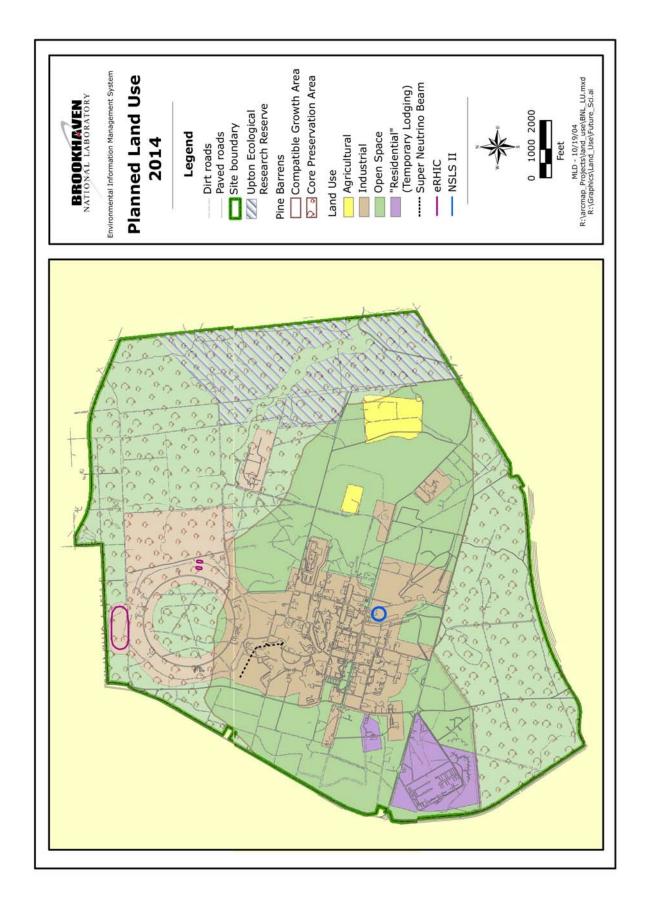


FIGURE E-3 Future Land Use

# 4.3.3 Agriculture

The approximate 70 acres currently used for growing crops for biological research will most likely remain as agricultural fields for use by the BNL Biology Department. However, no expansion of this use is anticipated.

#### 4.3.4 Residential

While much of BNL's current housing is expected to remain, BNL is currently developing plans for alternately-financed housing to replace some of the 60-year old housing. New facilities would be located on developed land in the proximity of the existing housing area.

# APPENDIX 2 INVENTORY OF BUILDINGS & MAP

This section contains an inventory of buildings showing the following information:

- Building Number (ID)
- Building Name (NAME)
- Owner Program Secretarial Office (OWNER)
- Mission Essential (ESN)
- Gross Square Feet (GROSS)
- Building Age (AGE)
- GSA Use Code (USE)
- Excess Status/Excess Year (EXCESS)
- Operational Status (STS)
- Current Replacement Plant Value (RPV)
- FY05 Deferred Maintenance (DM)
- FY05 Rehab and Improvements Cost (RHIC)

Also included is a map showing BNL's Buildings and Roads

# **INVENTORY OF BUILDINGS**

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0030	Brookhaven Center	SC	3	14,295.00	72	294	N -	1	3,168,013	535,993	737,070
0050	Police Headquarters	SC	2	10,466.00	65	296	N -	1	2,306,923	493,250	22,748
0051	Environmental Restoration	SC	2	12,377.00	72	101	N -	1	2,465,961	104,322	26,902
0086	Stationery Warehouse	SC	3	11,097.00	66	400	Y - 2005	12	1,837,729	263,685	24,120
0087	Excess Property Warehouse	SC	2	9,353.00	66	400	N -	1	1,567,431	559,635	20,329
0096	Truck/Utility Storage	SC	3	5,591.00	65	400	Y - 2006	4	940,100	143,750	12,152
0097	Maintenance Management Center	SC	2	3,755.00	65	101	N -	1	1,083,076	37,430	8,162
0100	Bulk Warehouse	SC	2	13,947.00	66	400	N -	1	2,105,055	293,197	30,314
0120	ESH & Q Office Building	SC	2	13,402.00	64	101	N -	1	2,885,501	266,100	29,130
0129	ITD,TFCU & Science Museum Staff Offices.	SC	2	10,107.00	64	101	N -	1	2,552,088	183,421	21,968
0130	Engineering/Safety & Risk Technology	SC	2	19,649.00	65	101	Y - 2007	1	3,589,856	715,647	2,874,209
0134	Plant Engine/CEGPA/Fiscal/Audit	SC	2	30,593.00	65	101	Y - 2008	1	5,490,981	363,610	5,127,371
0153	Cavendish - Men's Residence	SC	2	18,309.00	65	300	N -	1	3,906,916	258,838	39,795
0170	Compton - Men's Residence	SC	2	21,570.00	65	300	N -	1	4,686,902	232,192	46,883
0179	Staff Services/EENS/Post Office	SC	2	15,025.00	65	101	N -	1	2,852,584	199,871	32,657
0180	Fleming - Men's Residence	SC	2	17,038.00	65	300	N -	1	4,011,745	355,563	37,032
0185	Human Resources/Diversity Office	SC	2	12,122.00	64	101	N -	1	2,478,332	374,647	26,347
0197	NNSD/Graphic Arts/NNDC	SC	2	53,574.00	65	101	N -	1	16,473,920	1,385,709	116,444
0209	Bulk Warehouse	SC	2	14,164.00	64	400	N -	1	1,843,085	180,948	30,786

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0210	Gases Warehouse	SC	2	5,460.00	61	410	N -	1	918,047	88,681	11,867
0211	Procurement & Property Management	SC	2	4,928.00	65	101	N -	1	1,254,261	101,340	10,711
0244	Carpenter/Lock & Paint Shop	SC	2	11,342.00	60	605	N -	1	4,113,500	55,596	24,652
0257	Guest House	SC	2	5,919.00	63	300	N -	1	869,955	182,020	12,865
0258	Curie - Women's Residence	SC	2	12,975.00	64	300	N -	1	3,155,822	253,306	28,201
0302	Apartment 28	SC	2	4,731.00	60	300	Y - 2009	1	555,965	80,372	10,283
0303	Apartment 34	SC	2	5,310.00	65	300	Y - 2009	1	617,615	77,212	11,541
0304	Apartment Storage	SC	2	1,278.00	65	400	N -	1	217,563	99,496	2,778
0306	Apartment 13	SC	2	4,073.00	65	300	Y - 2009	2	469,608	66,977	402,631
0307	Apartment 11	SC	2	4,117.00	65	300	N -	1	474,115	113,450	8,948
0317	Recreation Hall	SC	3	7,168.00	65	294	N -	1	1,674,639	425,549	1,249,090
0321	Equipment Storage	SC	2	4,741.00	63	400	N -	1	836,095	135,286	210,305
0325	Apartment 7	SC	2	4,191.00	63	300	Y - 2009	1	518,881	68,316	450,565
0326	Site Maintenance Office	SC	2	8,150.00	63	101	N -	1	1,884,691	154,572	17,714
0327	Apartment 24	SC	2	3,781.00	63	300	Y - 2009	1	458,720	68,316	390,404
0328	Apartment 26	SC	2	2,481.00	63	300	Y - 2009	1	304,675	53,940	250,735
0330	Apartment 8	SC	2	3,931.00	63	300	Y - 2009	1	453,823	55,019	398,804
0331	Apartment 10	SC	2	4,088.00	63	300	Y - 2009	2	495,577	51,565	8,885
0334	Apartment 30	SC	2	2,565.00	63	300	Y - 2009	2	313,327	57,433	5,575
0335	Apartment 36	SC	2	3,173.00	63	300	N -	1	377,326	69,133	308,193
0339	Maintenance Storage	SC	2	4,408.00	66	400	N -	1	776,895	70,495	9,581

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0346	Storage	SC	2	282.00	60	421	N -	1	45,975	5,401	613
0348	Calibrations	SC	2	7,595.00	63	704	N -	1	2,743,126	321,049	16,508
0349	Apartment 2	SC	2	4,127.00	63	300	N -	1	473,898	84,115	8,970
0350	Apartment 4	SC	2	4,144.00	63	300	N -	1	475,636	84,158	9,007
0351	Apartment 6	SC	2	4,132.00	63	300	N -	1	474,406	96,837	8,981
0355	Contracts & Procurements	SC	2	10,295.00	63	101	N -	1	2,172,190	140,923	2,031,267
0356	Solid State Irradiation Facility	SC	1	4,391.00	63	765	N -	1	2,841,082	376,744	9,544
0359	Apartment 5	SC	2	4,099.00	63	300	N -	1	488,081	111,006	8,909
0360	Apartment 3	SC	2	4,087.00	63	300	N -	1	490,063	92,654	8,883
0361	Apartment 1	SC	2	4,263.00	63	300	N -	1	487,821	92,497	9,266
0362	Apartment 22	SC	2	4,502.00	63	300	N -	1	517,175	122,461	9,785
0363	Coin Laundry	SC	3	3,216.00	63	691	N -	1	726,618	211,419	6,990
0364	Apartment 40	SC	2	5,775.00	42	300	N -	1	879,243	80,374	12,552
0365	Apartment 41	SC	2	5,773.00	42	300	N -	1	722,914	80,369	12,548
0366	Apartment 42	SC	2	5,773.00	42	300	N -	1	723,220	80,369	12,548
0367	Apartment 43	SC	2	5,067.00	42	300	N -	1	768,133	78,583	11,013
0368-01	Summer Cottage	SC	2	1,072.00	38	300	N -	1	160,074	13,875	2,330
0368-02	Summer Cottage	SC	2	1,072.00	38	300	N -	1	160,074	13,875	2,330
0368-03	Summer Cottage	SC	2	1,003.00	38	300	N -	1	149,834	13,700	2,180
0368-04	Summer Cottage	SC	2	1,003.00	38	300	N -	1	149,834	13,700	2,180
0368-05	Summer Cottage	SC	2	1,085.00	38	300	N -	1	162,003	13,908	2,358

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0368-06	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-07	Summer Cottage	SC	2	1,003.00	38	300	N -	1	149,834	13,700	2,180
0368-08	Summer Cottage	SC	2	1,003.00	38	300	N -	1	149,834	13,700	2,180
0368-09	Summer Cottage	SC	2	1,085.00	38	300	N -	1	162,003	13,908	2,358
0368-10	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-11	Summer Cottage	SC	2	1,072.00	38	300	N -	1	160,074	13,875	2,330
0368-12	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-13	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-14	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-15	Summer Cottage	SC	2	1,072.00	38	300	N -	1	160,074	13,875	2,330
0368-16	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-17	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-18	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-19	Summer Cottage	SC	2	1,072.00	38	300	N -	1	160,074	13,875	2,330
0368-20	Summer Cottage	SC	2	1,072.00	38	300	N -	1	160,074	13,875	2,330
0368-21	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-22	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-23	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-24	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-25	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-26	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0368-27	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-28	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-29	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0368-30	Summer Cottage	SC	2	995.00	38	300	N -	1	148,647	13,680	2,163
0370	Child Development Center	SC	3	1,127.00	30	234	N -	1	329,307	3,806	2,450
0371	Brookhaven House	SC	2	3,213.00	22	300	N -	1	505,249	273,976	6,984
0373	Child Care Facility	SC	3	8,283.00	15	234	N -	1	1,733,992	48,849	18,003
0387	Park Shelter	SC	3	600.00	36	294	N -	1	45,000	1,518	1,304
0388	Danish House	SC	2	4,821.00	21	300	N -	1	731,329	13,530	10,479
0389	Environmental Monitoring Station P4	SC	2	114.00	59	769	N -	1	17,326	288	248
0397	Salt Storage Bldg.	SC	2	4,197.00	9	400	N -	1	429,912	12,985	9,122
0405	Building Storage	SC	2	3,969.00	44	400	N -	1	667,070	79,898	8,627
0406	Site Storage	SC	2	1,781.00	45	400	N -	1	288,739	46,701	3,871
0412	Site Storage	SC	2	2,031.00	63	400	N -	1	358,614	35,947	4,414
0421	Structural Biology	SC	1	5,980.00	63	741	N -	1	1,727,430	171,370	12,998
0422	Building Maintenance Office	SC	2	16,956.00	63	605	N -	1	6,002,024	463,346	36,854
0423	Equip/Vehicle Repair	SC	2	14,285.00	63	621	N -	1	3,991,981	268,687	31,049
0438	Science Education Center	SC	2	5,095.00	15	233	N -	1	1,511,701	84,293	11,074
0449	Telephone & Data Eqpt-Node 1 & 2	SC	2	1,899.00	26	642	N -	1	805,236	270,120	34,128
0452	Utilities Maintenance	SC	2	31,010.00	63	601	N -	1	9,842,169	713,460	67,401
0455	Utilities Storage	SC	3	787.00	89	400	N -	1	119,613	1,991	1,711

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0459	Business Systems Division	SC	2	14,304.00	61	297	Y - 2009	1	7,628,522	155,446	31,090
0460	Director's Office	SC	2	17,762.00	61	101	N -	1	4,467,106	725,438	3,741,668
0461	Gymnasium	SC	3	13,243.00	61	295	N -	1	3,260,400	375,882	28,784
0462	Central Shop - Sheet Metal Shop	SC	2	21,019.00	61	611	N -	1	7,337,256	527,314	45,607
0463	Biology	SC	1	113,546.00	61	741	N -	1	50,892,565	13,058,904	1,236,795
0464	DOE-BHSO Group Office	SC	2	11,644.00	61	101	N -	1	2,397,808	319,426	2,078,382
0473	Electron Beam Weld	SC	2	4,894.00	64	603	N -	1	2,173,283	335,124	10,637
0475	Intellectual Prop/Energy Science & Tech	SC	2	24,737.00	60	101	N -	1	4,702,388	799,845	3,902,544
0477	Research Library	SC	2	17,807.00	61	290	N -	1	4,464,745	267,497	38,704
0478	Swimming Pool	SC	3	19,441.00	60	294	N -	1	5,885,621	68,938	42,255
0479	Heavy Machine Shop	SC	2	33,926.00	60	611	N -	1	12,045,965	716,143	498,739
0480	Materials Sciences	SC	1	40,786.00	60	703	N -	1	9,630,965	722,986	88,649
0481	Sewage Pump House	SC	2	126.00	60	694	N -	1	13,455	11,482	274
0482	Hazardous Storage	SC	2	3,204.00	89	410	Y - 2006	4	419,904	8,106	6,964
0486	Machine Shop Storage	SC	2	304.00	11	400	N -	1	36,800	769	661
0487	Soil Analysis Building	SC	1	3,054.00	1	761	N -	1	122,195	-	
0488	Berkner Hall	SC	2	52,681.00	38	291	N -	1	15,502,637	1,235,456	1,014,503
0490	Medical Research Center	SC	1	222,512.00	48	742	N -	1	89,466,524	25,385,710	493,635
0491	Medical Research Reactor	SC	3	11,653.00	48	783	Y - 2002	4	6,568,085	39,070	25,328
0492	Well No. 105	SC	3	1,243.00	47	694	Y - 2002	3	328,512	-	2,702
0493	Video Work Area/Physical Training	SC	2	6,084.00	43	299	N -	1	1,521,848	48,988	163,224

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0494	BNL Records Holding Facility	SC	2	8,027.00	43	401	N -	1	1,515,815	191,653	24,447
0495	Oil Drum Storage Facility	SC	2	660.00	16	410	N -	1	101,780	1,670	1,435
0496	Storage	SC	2	6,000.00	44	400	N -	1	987,603	28,143	13,041
0496A	Storage	SC	2	987.00	60	401	N -	1	150,010	58,311	2,145
0497	Environmental Monitoring Station	SC	2	74.00	12	769	N -	1	11,247	187	161
0498	Central Shops Cleaning Facility	SC	2	999.00	9	611	N -	1	627,175	2,527	2,171
0510	Physics	SC	1	201,929.00	44	101	N -	1	68,614,774	33,651,176	2,392,897
0515	Information Technology Division	SC	2	59,239.00	40	297	N -	1	17,897,949	6,896,379	548,757
0516	Ground Water Pump Station (M.Rd.)	EM	2	396.00	5	694	N -	1	60,186	1,002	861
0517	Ground Water Treatment Facility	EM	2	228.00	5	694	N -	1	34,653	577	496
0518	Ground Water Treatment Facility	EM	2	228.00	9	694	N -	1	34,653	577	496
0519	Ground Water Pumping Station	EM	2	277.00	9	694	N -	1	42,100	701	602
0521	Air Sparge/Soil Vapor Extraction System	EM	2	1,814.00	12	694	N -	1	275,703	4,589	3,943
0522	Compressed Natural Gas Fueling Facility	SC	2	326.00	5	651	N -	1	647,769	825	709
0526	Energy Efficiency & Conservation	SC	1	29,159.00	63	703	N -	1	11,737,916	532,736	11,205,181
0527	Excess Office Space	SC	3	2,869.00	63	101	Y - 2004	12	1,036,163	155,501	6,236
0528	Electrical Ops / ECS Archive	SC	2	6,662.00	63	615	N -	1	1,609,581	54,828	14,480
0535	Instrumentation Division	SC	1	76,911.00	42	731	N -	1	36,344,126	9,507,251	482,168
0537	Telephone Equipment Node 5	SC	2	240.00	9	642	N -	1	38,238	607	522
0539	WSB Ground Water Recovery Unit	EM	2	120.00	4	694	N -	1	18,586	304	261
0555	Chemistry	SC	1	151,467.00	40	711	N -	1	60,966,783	21,189,990	329,217

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0560	High Field MRI Lab	SC	1	4,033.00	10	742	N -	1	1,072,781	97,529	8,766
0562	Central Shops Sheet Metal Storage	SC	2	701.00	26	401	N -	1	87,515	1,773	1,524
0563	Influent Measuring	SC	2	243.00	9	769	N -	1	36,933	615	528
0566	Blower Builing	SC	2	1,399.00	8	694	N -	1	205,776	3,539	3,041
0569	STP Monitoring Station @MH 192	SC	2	77.00	18	769	N -	1	6,781	195	167
0570	Weapons Range Equip. Storage	SC	2	212.00	26	401	N -	1	32,221	536	461
0571	Storage Shed	SC	2	48.00	9	450	N -	1	7,295	121	104
0573	Hypochlorite Storage Building	SC	1	180.00	64	400	N -	1	27,357	455	391
0575	Sewage Treatment Facility	SC	1	2,344.00	39	694	N -	1	428,350	9,133	105,095
0580	U.V. Disinfection Discharge	SC	1	514.00	64	694	N -	1	183,429	1,300	1,117
0581	Equipment Storage	SC	2	396.00	64	400	N -	1	60,186	34,490	861
0589	Storage Shed	SC	2	60.00	9	450	N -	1	9,119	152	130
0590	Environmental Monitoring Station P2	SC	2	129.00	12	769	N -	1	19,606	326	280
0591	Environmental Monitoring Station P9	SC	2	113.00	12	769	N -	1	17,174	286	246
0592	Environmental Monitoring Station P5	SC	2	120.00	59	761	N -	1	18,238	304	261
0593	Environmental Monitoring Station S6	SC	2	217.00	59	769	N -	1	32,981	549	472
0593A	Environmental Monitoring Storage Shed	SC	2	283.00	12	769	N -	1	43,012	716	615
0594	Environmental Monitoring Station P7	SC	2	114.00	59	769	N -	1	17,326	288	248
0595	Environmental Monitoring Station HMn	SC	2	74.00	12	769	N -	1	11,247	187	161
0596	Environmental Monitoring Station HMs	SC	2	74.00	12	769	N -	1	11,247	187	161
0597	Environmental Monitoring Station HQ	SC	2	60.00	12	769	N -	1	9,119	152	130

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0598	Ground Water Treatment Plant	EM	2	761.00	8	591	N -	1	107,558	1,925	1,654
0599	Fire House	SC	2	12,148.00	21	693	N -	1	2,651,723	324,236	221,404
0600	Chilled Water Facility	SC	1	12,778.00	16	694	N -	1	2,129,799	318,349	2,003,773
0603	69 kV Sub-Switchgear Bldg	SC	1	4,567.00	57	694	N -	1	682,684	117,808	9,926
0610	Central Steam Facility	SC	1	15,946.00	57	694	N -	1	3,494,150	1,227,276	99,659
0614	Well No. 4	SC	1	519.00	46	694	N -	1	78,881	15,378	1,128
0618	Well No. 6	SC	1	608.00	41	694	N -	1	92,408	13,880	1,322
0619	Well No. 7	SC	1	607.00	41	694	N -	1	92,256	1,536	1,319
0624	Water Treatment Facility	SC	1	5,985.00	41	694	N -	1	922,656	163,728	13,009
0628	Liquid Hydrogen Facility	SC	3	403.00	41	410	Y - 2005	12	50,330	-	876
0629	Emergency Power Facility	SC	2	1,281.00	38	694	Y - 2007	2	609,066	33,343	2,784
0630	Public Service Station	SC	3	2,381.00	40	651	N -	1	1,248,703	66,851	140,175
0631	AGS 69 kV Sub-Switchgear Bldg	SC	1	2,427.00	38	694	N -	1	358,366	6,140	5,275
0634	Well No. 10	SC	1	684.00	27	694	N -	1	180,307	24,528	1,487
0635	Well No. 11	SC	1	680.00	24	694	N -	1	179,699	17,020	1,478
0636	Fuel Pump House	SC	2	1,415.00	24	694	N -	1	214,936	3,580	3,076
0637	Well No. 12	SC	1	680.00	21	694	N -	1	181,529	17,020	1,478
0638	RHIC 69kV Switchgear	SC	1	1,857.00	8	694	N -	1	264,339	4,698	4,036
0639	Fuel Receiving/Transfer Facility	SC	1	7,916.00	10	694	N -	1	1,277,820	20,026	17,206
0641	Water Filter Building	SC	1	5,656.00	20	694	N -	1	746,847	55,271	12,293
0642	Equip. Storage Water Treatment Facility	SC	1	202.00	20	400	N -	1	24,176	511	439

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0645	Well Control House	EM	2	64.00	9	694	N -	1	9,727	162	139
0646	Air-Stripping & Pump House	SC	2	1,163.00	12	599	N -	1	158,112	2,942	2,528
0649	Site Maintenance	SC	1	615.00	31	601	Y - 2006	3	93,471	1,556	1,337
0650	Custodial Storage	SC	3	12,408.00	47	692	Y - 2000	4	2,805,701	47,883	26,969
0650A	Storage	SC	3	1,246.00	65	401	Y - 1997	4	452,661	-	2,708
0650T	Construction Group	SC	2	1,985.00	16	101	N -	1	596,484	21,766	4,314
0651	Fuel Off-Loading Facility	SC	1	2,092.00	9	591	N -	1	289,648	5,292	4,547
0652	Man Lift Garage/Equip. Storage	SC	2	2,500.00	17	450	N -	1	98,489	6,325	5,434
0654	Well #10-Carbon Filter Bldg.	SC	1	1,020.00	14	694	N -	1	155,026	2,580	2,217
0655	Well #11-Carbon Filter Bldg.	SC	1	999.00	14	694	N -	1	152,182	2,527	2,171
0657	Well #12-Carbon Filter Bldg.	SC	1	1,020.00	13	694	N -	1	154,570	2,580	2,217
0659	Chilled Water Storage Pump House	SC	1	1,241.00	10	599	N -	1	163,316	3,140	2,697
0670	SR-90 Pilot Ground Water Treatment	EM	2	1,507.00	3	694	N -	1	196,047	3,812	3,275
0680	West Gate Booth	SC	2	96.00	46	641	N -	1	85,449	243	120,209
0680A	Visitors Gate Guard Booth	SC	2	74.00	46	641	N -	1	66,891	187	161
0680B	Truck Inspection Booth	SC	2	17.00	8	641	N -	1	15,367	43	37
0680C	Airport Bus Stop	SC	2	66.00	34	292	N -	1	35,228	167	143
0701	BGRR Project Offices	EM	2	38,641.00	57	783	Y - 1997	4	6,546,226	133,954	143,987
0703	Lab/Office Building	SC	1	84,498.00	57	791	N -	1	36,896,207	7,481,493	800,658
0704	Fan House	EM	3	9,864.00	57	784	Y - 2000	4	447,876	-	21,440
0707A	Pumphouse	EM	3	1,215.00	57	784	Y - 2000	12	297,199	30,474	2,641

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0707B	Water Treatment House	EM	3	262.00	41	784	Y - 2000	12	75,395	-	569
0715	Stack Monitoring Station	EM	3	208.00	27	769	Y - 2000	4	66,209	-	452
0725	National Synchrotron Light Source	SC	1	155,689.00	25	785	N -	1	59,814,162	1,164,152	1,398,393
0726	NSLS Mech Tech Supply Facility	SC	2	3,519.00	24	551	N -	1	569,695	45,362	7,649
0727	NSLS Mechanical/Magnet Measurement	SC	2	4,000.00	24	551	N -	1	763,279	10,119	8,694
0728M	NSLS Office Building	SC	2	3,662.00	27	101	N -	1	981,921	11,160	7,959
0729	NSLS Source Development Laboratory	SC	2	8,018.00	13	721	N -	1	1,353,611	28,629	17,427
0750	High Flux Beam Reactor	EM	3	117,790.00	42	783	Y - 2000	4	43,139,158	-	356,019
0751	Cold Neutron Facility	EM	2	2,141.00	36	792	N -	2	481,582	-	4,654
0753	Transmitter Station	EM	3	128.00	27	642	Y - 2006	12	19,454	324	278
0754	Emergencey Operations Facility	SC	2	2,121.00	18	101	N -	1	3,422,358	5,366	4,610
0801	Isotope Research and Processing	SC	1	51,056.00	56	782	N -	1	31,956,948	285,819	110,971
0802	Fan House	EM	2	1,282.00	56	694	Y - 2008	4	318,057	3,243	2,786
0810	Liquid Waste Transfer	SC	2	1,087.00	5	591	N -	1	128,671	2,750	2,363
0811	Waste Concentration Facility	SC	3	1,906.00	56	592	Y - 2004	4	287,513	78,488	4,143
0815	EENS Multiprogram Laboratory	SC	1	64,228.00	45	703	N -	1	28,514,118	7,951,888	139,601
0817	Engineering Support Facility	SC	2	8,828.00	11	101	N -	1	2,036,122	38,006	19,188
0820	ATF / Vacuum Group	SC	1	29,507.00	49	703	N -	1	13,415,102	237,017	64,134
0820B	ATF Storage Facility	SC	2	726.00	49	401	N -	1	91,351	18,581	1,578
0821	Heat Transfer/Fluid Dyn Storage	SC	2	463.00	28	401	N -	1	57,389	1,171	1,006
0830	Environmental Waste Technical Center	SC	1	28,946.00	44	792	N -	1	12,205,305	3,249,746	62,915

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0832	Phenix Assembly Building	SC	2	8,180.00	10	551	N -	1	1,614,495	20,694	17,779
0835	CAD Warehouse	SC	2	7,115.00	44	401	N -	1	1,237,037	220,030	15,465
0836	Thermal Distribution Research Facility	SC	2	1,021.00	22	703	N -	1	155,118	4,786	2,219
0839	Environmental Monitoring Station	SC	2	75.00	12	769	N -	1	11,399	190	163
0855	WMF-RCRA	SC	2	27,475.00	8	591	N -	1	3,769,131	69,507	59,717
0860	WMF-Operations	SC	2	12,364.00	8	101	N -	1	2,621,919	31,279	26,873
0865	WMF-Reclamation	SC	2	20,886.00	8	593	N -	1	3,181,691	172,838	45,396
0870	WMF-Mixed Waste	SC	2	6,888.00	8	593	N -	1	1,221,790	17,426	14,971
0899	Storage Building	SC	2	338.00	57	400	N -	1	41,093	855	735
0901	Radioisotope and Radiotracer C	SC	1	34,301.00	57	712	N -	1	15,389,160	642,412	74,554
0901A	Van de Graaff Building	SC	1	65,611.00	38	785	N -	1	29,453,137	636,747	142,607
0902	Magnet Division	SC	1	135,745.00	57	551	N -	1	37,574,588	10,791,672	395,045
0904	Electricians Work Area	SC	2	1,769.00	50	612	N -	1	703,908	114,205	3,845
0905	Magnet Assembly	SC	1	28,408.00	47	551	N -	1	8,608,621	252,281	61,745
0906	PET Imaging Laboratory	SC	1	4,805.00	25	742	N -	1	1,412,804	203,886	10,444
0907	Heavy Ion Power Supply A	SC	1	1,944.00	18	785	N -	1	295,870	54,146	4,225
0908	Heavy Ion Power Supply B	SC	1	660.00	18	785	N -	1	86,254	1,670	1,435
0909	Heavy Ion Beam Tunnel	SC	1	13,161.00	21	785	N -	1	7,847,900	71,266	28,606
0911	Office/Service Building	SC	1	100,663.00	50	101	N -	1	43,236,496	18,914,277	218,793
0912	AGS Experimental Halls	SC	1	187,413.00	48	724	N -	1	28,028,020	1,590,256	407,346
0912A	Mechanical Equipment Building	SC	1	5,864.00	49	785	N -	1	1,054,781	41,912	12,746

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0913	AGS Tunnel	SC	1	47,891.00	49	785	N -	1	28,354,638	2,938,102	754,092
0913A	Fan House A - Northeast	SC	1	664.00	49	785	N -	1	102,280	15,451	1,443
0913B	Fan House B - North	SC	1	654.00	49	785	N -	1	100,760	15,219	1,421
0913C	Fan House C - Northweat	SC	1	1,632.00	49	785	N -	1	392,674	93,468	3,547
0913D	Fan House D - Southwest	SC	1	662.00	49	785	N -	1	101,976	15,405	1,439
0913E	Fan House E - Southwest	SC	1	671.00	49	785	N -	1	103,344	15,180	1,458
0913F	Proton House D18	SC	1	401.00	22	785	N -	1	71,998	1,014	872
0913G	Proton House E18	SC	1	401.00	22	785	N -	1	62,492	1,014	872
0913H	Proton House F18	SC	1	401.00	22	785	N -	1	62,659	1,014	872
09131	Proton House G18	SC	1	400.00	22	785	N -	1	61,916	1,012	869
0913J	Proton House H18	SC	1	402.00	22	785	N -	1	62,220	1,017	874
0913K	Proton House I18	SC	1	401.00	22	785	N -	1	62,068	1,014	872
0913L	Proton House J18	SC	1	402.00	22	785	N -	1	62,220	1,017	874
0913M	Proton House K18	SC	1	401.00	22	785	N -	1	62,068	1,014	872
0913N	Proton House L18	SC	1	401.00	22	785	N -	1	61,249	1,014	872
09130	Proton House L18A	SC	1	1,042.00	16	785	N -	1	313,207	2,636	2,265
0913P	Proton House A18	SC	1	401.00	22	785	N -	1	62,068	1,014	872
0913Q	Proton House B18	SC	1	401.00	22	785	N -	1	62,581	1,014	872
0913R	Proton House C18	SC	1	402.00	22	785	N -	1	62,220	1,017	874
0913S	H-10 Equipment House	SC	1	1,828.00	12	785	N -	1	285,402	4,625	3,973
0913T	Storage	SC	2	1,075.00	27	401	N -	1	180,476	2,720	2,337

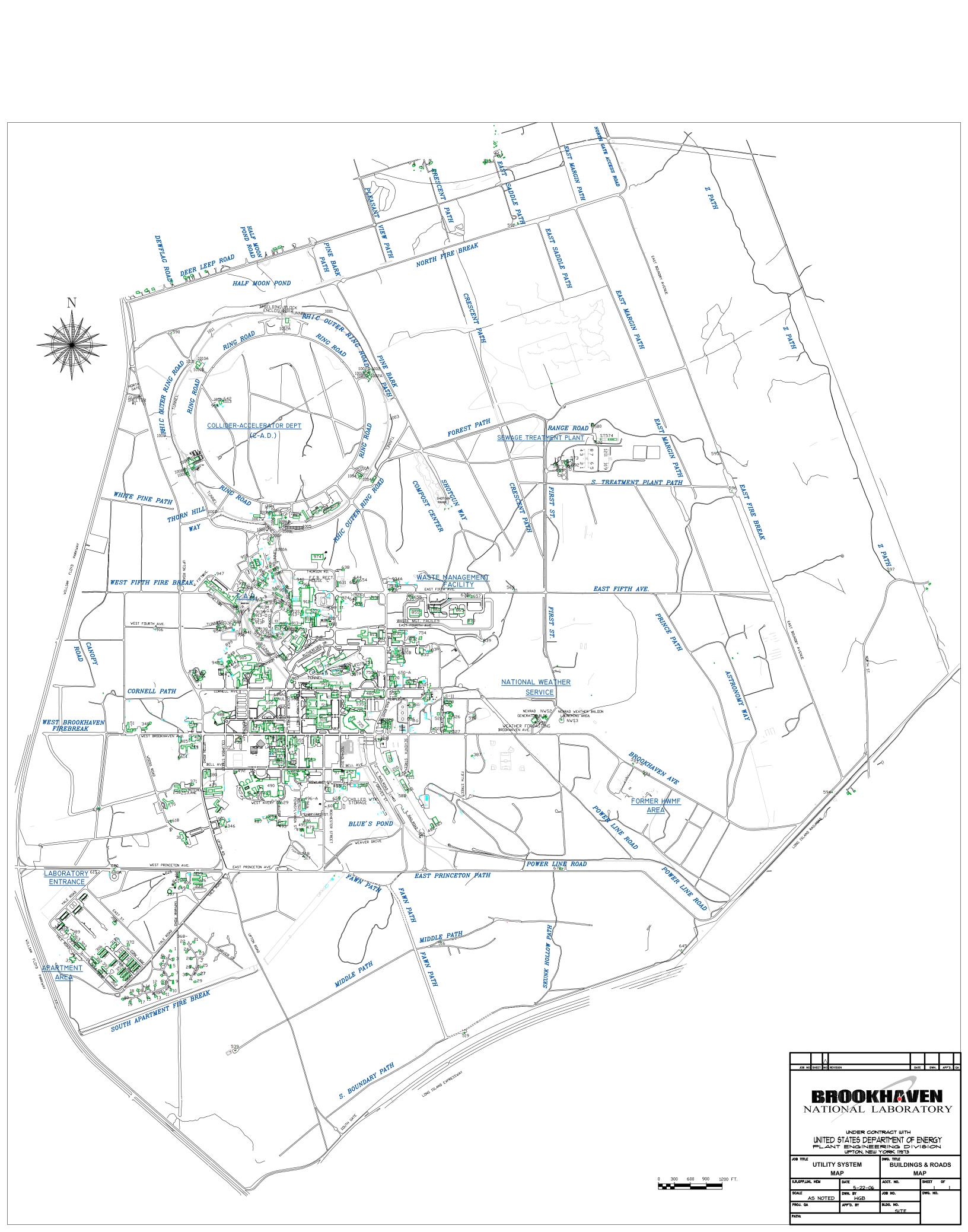
ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0914	Booster Equipment	SC	1	8,614.00	48	785	N -	1	1,590,376	230,536	18,723
0916	AGS Well 102	SC	1	404.00	48	785	N -	1	61,402	1,022	878
0918	AGS Warehouse	SC	1	16,526.00	48	401	N -	1	2,438,898	71,985	35,920
0919	G-2 Experiment Group	SC	1	16,463.00	44	785	N -	1	2,874,456	202,053	35,783
0919A	AGS Crogenics/Target Group	SC	1	4,876.00	42	601	N -	1	868,234	93,077	10,598
0919B	Works Building	SC	1	8,762.00	40	601	N -	1	1,484,153	133,115	19,044
0919C	G-2 Plan-B Refrigerator Room	SC	1	1,066.00	39	785	N -	1	143,632	2,697	2,317
0919G	G-2 R&D Refrigerator Room	SC	1	983.00	16	785	N -	1	131,556	2,487	2,137
0919H	PTR Rect.House #1	SC	1	992.00	8	785	N -	1	167,285	80,650	2,156
09191	PTR Rect.House #2	SC	1	527.00	8	785	N -	1	68,463	12,496	1,145
0919J	PTR Rect.House #3	SC	1	810.00	8	785	N -	1	106,970	18,793	1,761
0920	E-10 Power Building	SC	1	1,525.00	35	785	N -	1	353,800	3,858	3,315
0921	Exp. Power Supply Bldg. G-2	SC	1	3,903.00	43	724	N -	1	597,862	151,946	8,483
0922	Scientific Assembly	SC	2	15,238.00	43	551	N -	1	2,500,349	49,900	33,120
0923	Electronic Equipment Repair	SC	2	11,511.00	42	612	N -	1	1,949,910	29,121	25,019
0924	RHIC-Magnet Production/Assembly	SC	2	19,162.00	38	551	N -	1	2,953,779	161,320	41,649
0925	Works Building	SC	1	6,814.00	39	551	N -	1	1,085,625	104,063	14,810
0926	Receiving/Warehouse	SC	2	10,091.00	38	401	N -	1	1,538,394	275,193	21,933
0927	N. Experimental Tunnel	SC	1	1,236.00	35	785	N -	1	10,069,512	19,871	2,686
0928	Siemens MG Power Supply	SC	1	18,086.00	37	785	N -	1	3,014,547	669,257	39,310
0929	RF Power Supply	SC	1	13,471.00	37	785	N -	1	2,416,071	151,289	29,280

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0930	200 Mev Linac	SC	1	103,647.00	37	785	N -	1	13,545,498	2,263,373	1,185,279
0931	BLIP	SC	1	2,066.00	35	792	N -	1	325,885	215,925	4,490
0932	F-10 House Equipment	SC	1	1,737.00	35	785	N -	1	373,853	26,720	3,775
0933	Site Maintenance Riggers Shop	SC	2	2,380.00	47	601	N -	1	540,681	12,711	5,173
0933A	Site Maintenance Riggers Supervisor	SC	2	937.00	26	101	N -	1	119,327	5,615	2,037
0934A	Site Maintenance Riggers Storage	SC	2	1,179.00	29	400	N -	1	152,766	8,564	2,563
0935	Science Museum	SC	2	5,850.00	26	293	N -	1	1,056,798	20,954	12,715
0936	Equipment Storage	SC	2	4,049.00	26	401	N -	1	635,009	17,005	48,801
0937	Radiation Effects Tunnel	SC	2	2,799.00	20	412	N -	1	1,479,331	7,081	6,084
0938	Radiation Effects Facility	SC	2	5,272.00	20	230	N -	1	1,785,773	20,512	11,459
0939	C-A / R & D Laboratory	SC	2	15,842.00	18	785	N -	1	7,220,271	40,078	34,433
0940	On-Line Data Facility	SC	2	2,420.00	26	297	N -	1	307,740	7,128	5,260
0941	Power Supply & Support Building	SC	1	1,362.00	16	785	N -	1	176,956	3,446	2,960
0942	AGS Booster Tunnel	SC	1	12,197.00	19	785	N -	1	6,491,908	30,857	26,510
0943	Magnet Test Control Room	SC	2	1,121.00	28	297	N -	1	148,098	2,836	2,437
0944	Magnet Power Supply	SC	2	984.00	26	785	N -	1	127,835	2,489	2,139
0945	Production Holding	SC	2	4,068.00	26	551	N -	1	710,379	47,419	8,842
0946	Beam Stop Pump House	SC	2	324.00	18	785	N -	1	53,287	820	704
0947	Environmental Monitoring Station	SC	2	75.00	12	769	N -	1	11,399	190	163
0948	Pump House	SC	2	544.00	10	785	N -	1	98,212	1,376	1,182
0949	G -2 Tunnel	SC	1	4,589.00	10	785	N -	1	1,492,349	11,609	9,974

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
0950	Vacuum Pump House	SC	2	141.00	18	785	N -	1	23,190	357	306
0951	Tower Equipment - T.E.Building	SC	2	657.00	54	401	N -	1	118,787	7,967	1,428
0952	Storage	SC	2	224.00	19	401	N -	1	40,199	567	487
0953	Rectifier House A	SC	1	654.00	8	785	N -	1	107,560	3,547	1,421
0954	Electrical Utilities	SC	1	217.00	12	731	N -	1	35,689	549	472
0956	NSRL Beam Tunnel	SC	1	4,829.00	5	785	N -	1	3,640,537	12,217	10,496
0957	NSRL Equipment Building	SC	1	5,160.00	5	694	N -	1	885,970	13,054	11,215
0958	NASA Space Radiation Laboratory	SC	1	4,554.00	5	742	N -	1	2,367,643	11,521	9,898
0959	Environmental Monitoring Station	SC	2	75.00	12	769	N -	1	11,399	190	163
0964	Storage	SC	2	526.00	34	401	N -	1	87,936	1,331	1,143
0966	Expmtnl. Computer/Elec.	SC	2	1,197.00	23	297	N -	1	159,873	3,028	2,602
0975	Machine Shop/SPS	SC	2	5,959.00	38	611	N -	1	1,002,545	246,631	12,952
1000	RHIC Tunnel	SC	1	256,548.00	25	785	N -	1	41,365,915	849,957	557,612
1000P	W-Line Power Supply Building	SC	1	2,484.00	25	785	N -	1	361,998	6,284	5,399
1002	Brahms Experimental Hall	SC	1	4,948.00	25	724	N -	1	991,869	12,518	10,755
1002A	Instrumentation/Brahms Service	SC	1	4,117.00	25	785	N -	1	649,436	76,169	8,948
1002B	2 O'Clock Cryo Service Building	SC	1	3,267.00	8	785	N -	1	516,101	8,265	7,101
1002C	Fast Electronics Hut	SC	2	504.00	8	785	N -	1	66,129	1,690	1,095
1002D	Brahms Counting House	SC	2	1,134.00	8	724	N -	1	344,995	31,239	2,465
1004A	RHIC RF Support Building	SC	1	6,270.00	25	785	N -	1	1,104,494	75,240	13,628
1004B	4 O'Clock Cryo/Main Power Supply	SC	1	5,927.00	12	785	N -	1	966,602	14,994	12,882

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
1005E	East Ejection Power Supply	SC	1	5,539.00	25	785	N -	1	1,020,833	274,162	12,039
1005H	RHIC Facility Compress Bldg	SC	1	12,063.00	25	785	N -	1	2,020,725	83,952	26,219
1005P	Cooling Tower No. 7 Pump House	SC	1	989.00	8	785	N -	1	150,314	3,102	2,150
1005R	Cryogenics Refrigerator Wing	SC	1	14,459.00	8	785	N -	1	2,265,902	305,388	206,427
1005S	Collider Center	SC	2	40,791.00	25	101	N -	1	10,115,480	596,862	188,660
1006	Star Experimental Hall	SC	1	16,801.00	25	724	N -	1	3,584,015	260,513	36,517
1006A	Star Service Building	SC	1	4,489.00	25	785	N -	1	727,933	103,999	9,757
1006B	6 O' Clock Cryo Service Building	SC	1	3,245.00	12	785	N -	1	503,990	8,209	7,053
1006C	Star Counting House	SC	2	1,838.00	10	724	N -	1	558,410	4,650	3,995
1006D	Office Modulars	SC	2	1,432.00	7	101	N -	1	436,400	5,353	3,112
1007W	West Ejection Power Supply	SC	1	5,000.00	25	785	N -	1	790,560	168,747	10,868
1008	Phenix Experimental Hall	SC	1	11,874.00	25	724	N -	1	3,083,775	147,402	25,808
1008A	Phenix Service Building	SC	1	9,848.00	25	785	N -	1	1,638,204	156,604	21,405
1008B	Service Bldg.	SC	1	4,007.00	12	785	N -	1	633,644	10,137	8,709
1008C	Phenix Counting House	SC	1	1,163.00	9	724	N -	1	352,322	2,942	2,528
1008E	Office Modular	SC	2	4,276.00	7	101	N -	1	1,123,349	18,469	9,294
1008F	Mixing Building	SC	1	787.00	6	785	N -	1	112,419	1,991	1,711
1010	Phobos Experimental Hall	SC	1	8,501.00	8	724	N -	1	1,775,787	21,506	18,477
1010A	10 O'Clock Cryo/Phobos Service	SC	1	6,539.00	8	785	N -	1	1,048,074	16,543	14,213
1010B	Phobos Counting House	SC	1	1,137.00	8	724	N -	1	347,724	2,876	2,471
1012	Future Facility/Experimental	SC	1	8,818.00	8	785	N -	1	3,563,420	22,308	19,166

ID	NAME	PS0	ESN	GROSS	AGE	USE	EXCESS	STS	RPV	DM	RHIC
1012A	12 O'Clock Cryo/Polarimeter Service	SC	1	6,492.00	8	785	N -	1	1,039,961	16,424	14,110
1013	Equipment Storage	SC	2	202.00	9	401	N -	1	24,176	511	439
1070	Environmental Monitoring Station	SC	2	75.00	12	769	N -	1	11,399	190	163
1101	CAD Warehouse	SC	2	2,490.00	25	401	N -	1	878.289	6,299	5,412



## APPENDIX 3 INVENTORY OF OTHER STRUCTURES & FACILITIES (OSF)

This section contains an inventory of OSF showing the following information:

- Owner Program Secretarial Office (PSO)
- OSF Identifier (ID)
- OSF Name (NAME)
- Mission Essential (ESN)
- Current Replacement Plant Value (RPV)
- GSA Use Code (USE)
- Excess Status/Excess Year (EXCESS)
- FY05 Deferred Maintenance (DM)
- FY05 Rehab and Improvements Cost (RHIC)
- BNL Type (OSF Type)

Also included are maps showing the following utilities:

- Electrical Utilities
  - o 13.8 kV and above Electrical Distribution
  - o 2.4 kV and below Electrical Distribution
  - Communications
- Mechanical utilities
  - o Central Steam System Distribution
  - o Central Chilled Water Distribution
  - Potable Water Distribution
  - Sanitary Collection System
  - Storm Water Collection System
  - Gas Distribution
  - Non-Potable Water Distribution
  - Off-Gas Collection System

#### **INVENTORY OF OSF**

PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
EM	2410	S. Boundary Pump & Treat Sys.(OU III)	1	504,149	8159	N -	-	-	EM
EM	2405-STACKDRAIN	Liquid Waste Piping System (ST0705)	3	612,038	4441	Y - 2010	-	-	EM
EM	ST0707	HFBR Cooling Tower Basin	3	985,789	8159	Y - 2000	-	-	EM
EM	2360	OER Monitoring Wells	2	1,427,826	5171	N -	-	-	EM
EM	OS-6	OU VI - (EDB) Plume Treatment System	1	83,534	8159	N -	-	-	EM
EM	OS-5	North Street Treatment System	1	779,060	8159	N -	-	-	EM
EM	OS-3	LIPA Vault	1	398,138	8159	N -	-	-	EM
EM	2415	Middle Road Groundwater Pump/Treat	1	2,602,856	8159	N -	-	-	EM
EM	2420	Western South Boundary Treatment Sys(539)	1	1,751,236	8159	N -	-	-	EM
EM	2425	VOC Treatment System (B/96)	1	976,951	8159	N -	-	-	EM
EM	2430	Strontium 90 Treatment System (B/670)	1	1,817,215	8159	N -	-	-	EM
EM	6250750	High Flux Beam Reactor Tank	3	227,203	4322	Y - 2000	-	-	EM
EM	1090-HFBR	HFBR	3	86,981,956	3009	Y - 2000	-	-	EM
EM	2395	OER Pump & Treat Con (Off Site @ I.P.)	1	1,539,443	1309	N -	-	-	EM
EM	OS-4	Airport Treatment System	1	1,961,213	8159	N -	-	-	EM
EM	OS-1	Industrial Park Treatment System	1	556,249	8159	N -	-	-	EM
EM	OS-5E	North Street East Treatment System	1	191,895	8159	N -	-	-	EM
SC	2240	Gauging Station	2	11,316	2009	N -	-	-	Environmental Services
SC	2020	Monitoring Station	2	44,166	2009	N -	-	-	Environmental Services

PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	2010	Test Wells	2	1,224,451	5159	N -	-		Environmental Services
EM	GW_TREATMENT	Treatment Plants	1	28,421,637	5129	N -	-	-	Environmental Services
SC	WELLS_MON_OTHER	Other Wells	3	1,307,226	5159	Y - 2001	-	-	Environmental Services
SC	2340	Monitoring Wells	2	3,636,180	5171	N -	-	-	Environmental Services
SC	FENCES	Fences	2	1,935,622	2429	N -	-	12,888	Land, Roads & Walks
SC	0001	Improvements To Land (wells)	2	14,649,741	2009	N -	-	-	Land, Roads & Walks
SC	RAILROAD	Railroad Tracks	2	920,199	1429	N -	-	-	Land, Roads & Walks
SC	SIDEWALKS	Paved Walks	2	1,988,621	1129	N -	-	405,392	Land, Roads & Walks
SC	LANDSCAPE_SITE PREP	Site Preparation	2	2,415,587	2009	N -	-	-	Land, Roads & Walks
SC	ROADS	Roads And Bridges	1	9,071,559	1729	N -	1,550,000	120,000	Land, Roads & Walks
SC	PARKING_LOTS	Parking Lots And Hardstds	2	3,278,086	1789	N -	-	963,666	Land, Roads & Walks
SC	409030164	Storage Platform-2210	3	166,128	4919	N -	-	-	Procurement & Property  Management
SC	ST0626	Storage Platform	3	10,000	6008	N -	-	-	Procurement & Property Management
SC	1040-CYCL	60 In Cyclotron	1	16,809,871	3209	N -	-	-	Programmatic - Chemistry
SC	1050-VDG	Van Degraaff Gen 465	1	1,057,914	3209	N -	-	-	Programmatic - Chemistry
SC	1020-AGS	AGS in Bldg 913	1	336,914,812	3221	N -	1,750,000	2,900,000	Programmatic - Collider- Accelerator
SC	1106	Source Development Lab in Bldg. 930	1	2,664,897	3251	N -	-	-	Programmatic - Collider- Accelerator
SC	2080	Equipment Enclosure AGS 3 in Bldg. 913	1	862,425	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	1010-TVG	Tandem Van Degraaff	1	52,282,188	3209	N -	-	-	Programmatic - Collider- Accelerator
SC	2330	Shielding Block Yard	2	76,134	2009	N -	-	-	Programmatic - Collider- Accelerator
SC	409030167	Emergency Holding Pit 3-2280	2	38,087	4431	N -	_	-	Programmatic - Collider- Accelerator

PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	409030165	Emergency Holding Pit 1-2260	2	38,087	4431	N -	-	-	Programmatic - Collider- Accelerator
SC	403030162	Gas Storage-RHIC-(B/1005G)	1	430,631	4331	N -	-	-	Programmatic - Collider- Accelerator
SC	ST1004	Facility Hall at 4 O'clock in Bldg. 1000	1	1,820,349	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	1102-AGSMAGNET	AGS Magnet System	1	13,926,460	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	2300	EEBA Cooling Tower	2	162,721	5769	N -	-	-	Programmatic - Collider- Accelerator
SC	2090	Equipment Enclosure AGS 4 in Bldg. 913	1	732,940	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	409030170	Storage Tank 2-Liq Nitro-2130	2	895,700	4331	N -	-	-	Programmatic - Collider- Accelerator
SC	1104-AGSBOOSTER	AGS Booster Accelerator	1	41,974,907	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	2070	Equipment Enclosure AGS 2 in Bldg. 913	1	429,823	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	2370	Liquid Helium Storage (Bldg 1005)	1	608,360	4319	N -	-	-	Programmatic - Collider- Accelerator
SC	2310	Mev Linac Tower	2	156,139	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	701030173	Heavy Ion Beam Line-1101	1	10,016,378	3209	N -	-	-	Programmatic - Collider- Accelerator
SC	2390	Helium Storage Tanks (B/1006B)	1	641,021	4331	N -	-	-	Programmatic - Collider- Accelerator
SC	2060	Equipment Enclosure AGS 1 in Bldg. 913	1	816,934	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	2250	Equipment Enclosure AGS 6 in Bldg. 913	1	50,812	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	2290	Rf Mg Cooling Tower	2	172,713	5769	N -	-	-	Programmatic - Collider- Accelerator
SC	409030172	Cryogenic Liq Storage Fac (B/963)	3	105,558	4331	Y - 2005	_	_	Programmatic - Collider- Accelerator
SC	409030169	Emergency Holding Pit 2-2270	2	38,087	4431	N -	-	-	Programmatic - Collider- Accelerator
SC	2100	Equipment Enclosure AGS 5 in Bldg. 913	1	292,507	3221	N -	-	-	Programmatic - Collider- Accelerator
SC	1107-RHIC	RHIC Machine	1	538,983,573	3221	N -	2,259,000	2,077,000	Programmatic - Collider- Accelerator
SC	1103-AGSLINAC	200 M Linac Machine	1	5,948,016	3251	N -	-	-	Programmatic - Collider- Accelerator

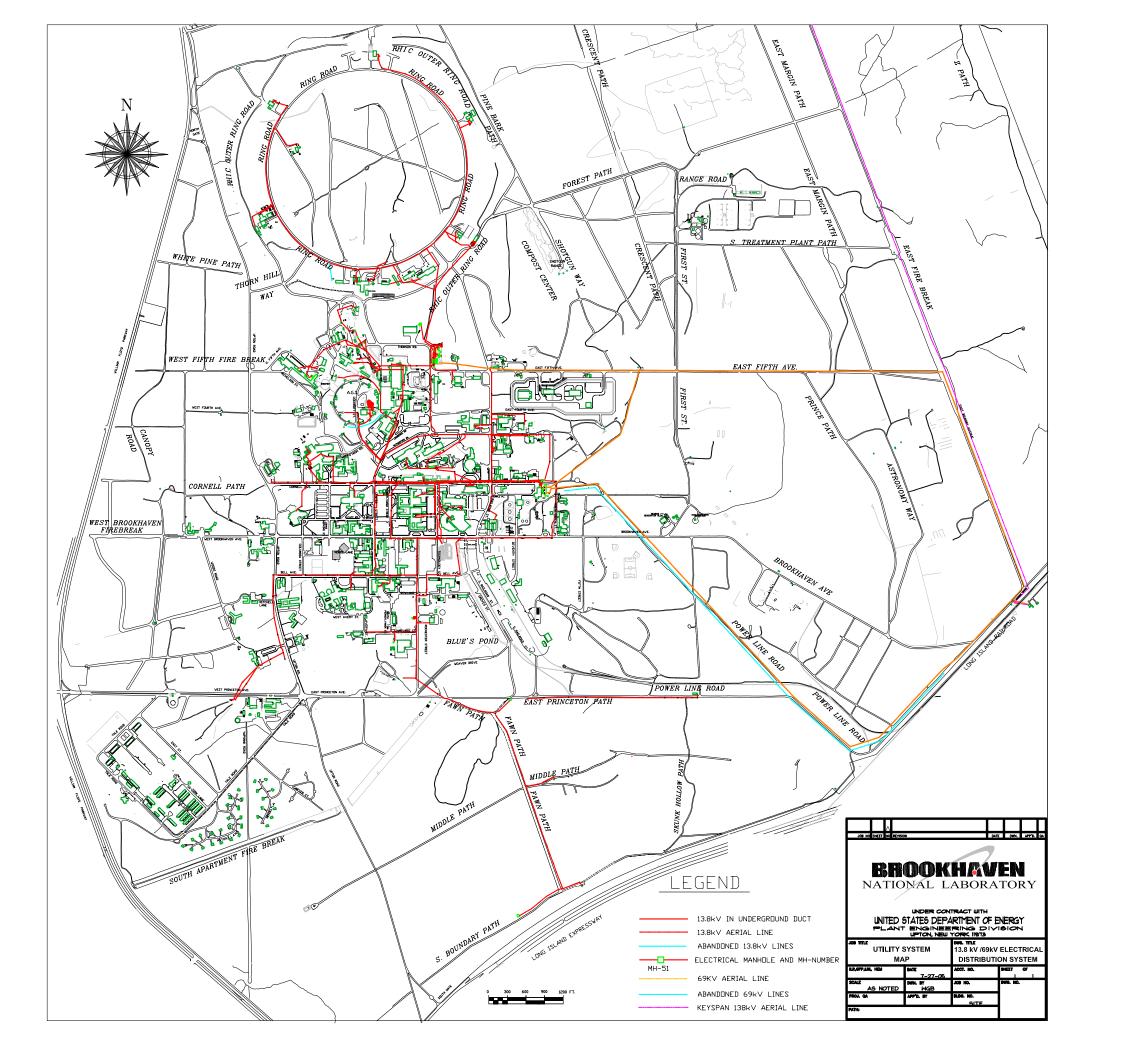
PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	6250815	Energy Science & Technology	1	28,653	4322	N -	-	-	Programmatic - EENS
SC	ST0713	Meteorology Tower 280'-EE-GD73	2	4,942,979	7279	N -	-		Programmatic - EENS
SC	6250801	Hot Laboratory (B/801)	1	27,808	4322	N -	-	-	Programmatic - EENS
SC	6250703	Lab/Office Bldg 703 Tanks	2	57,882	4322	N -	-	-	Programmatic - EENS
SC	1080-ACCEL	Radiological Accel	1	6,720,892	3221	N -	-	-	Programmatic - EENS
SC	2040	Hardened Antenna	2	242,394	7281	N -	-	-	Programmatic - Instrumentation
SC	2030	Metal Incinerator	3	22,390	6419	Y - 1997	-	-	Programmatic - Medical
SC	1100-NSLS	NSLS	1	102,356,166	3221	N -	102,000	5,376,499	Programmatic - NSLS
SC	1105	Accelerator Test Facility	1	1,642,554	3251	N -	-	-	Programmatic - NSLS
SC	1030-VDG	Van de Graff Gen	1	5,977,613	3209	N -	-	-	Programmatic - Physics
SC	1070-BMRR	Medical Reactor	3	8,442,517	3009	Y - 2002	-	-	Programmatic - Reactors
SC	ST0568	Vehicle Monitoring Station	2	15,715	5009	N -	-	95,000	Radiological Controls
SC	ST0690	Tactical Training Station	2	25,000	2919	N -	-	-	Safeguards & Security
SC	ST0574	Weapons Range Facility	2	575,965	2469	N -	-	-	Safeguards & Security
SC	ST0658	Chilled Water Storage Tank	1	3,957,348	4171	N -	-	8,930	Utilities - Chilled Water
SC	WATER_CHILL/AIR	Underground Cw & Air Dist Sys	1	7,586,806	8721	N -	-	-	Utilities - Chilled Water
SC	DUCTBANK_COMM	Com. Ductbank, Tech.St.	1	1,004,366	7231	N -	-	-	Utilities - Communications
SC	FIRE_ALARM_SITE	Fire Alarm System	1	57,500	7331	N -	705,000	1,200,000	Utilities - Communications
SC	FIBER_OPTIC	Fiber-Optic Infrastructure	1	1,669,250	7231	N -	108,000	-	Utilities - Communications
SC	ST0613	Substation	1	190,836	8988	N -	-	-	Utilities - Electric
SC	GENERATOR_629	Med/Bio Emergency Power	1	731,639	5906	N -	-	-	Utilities - Electric

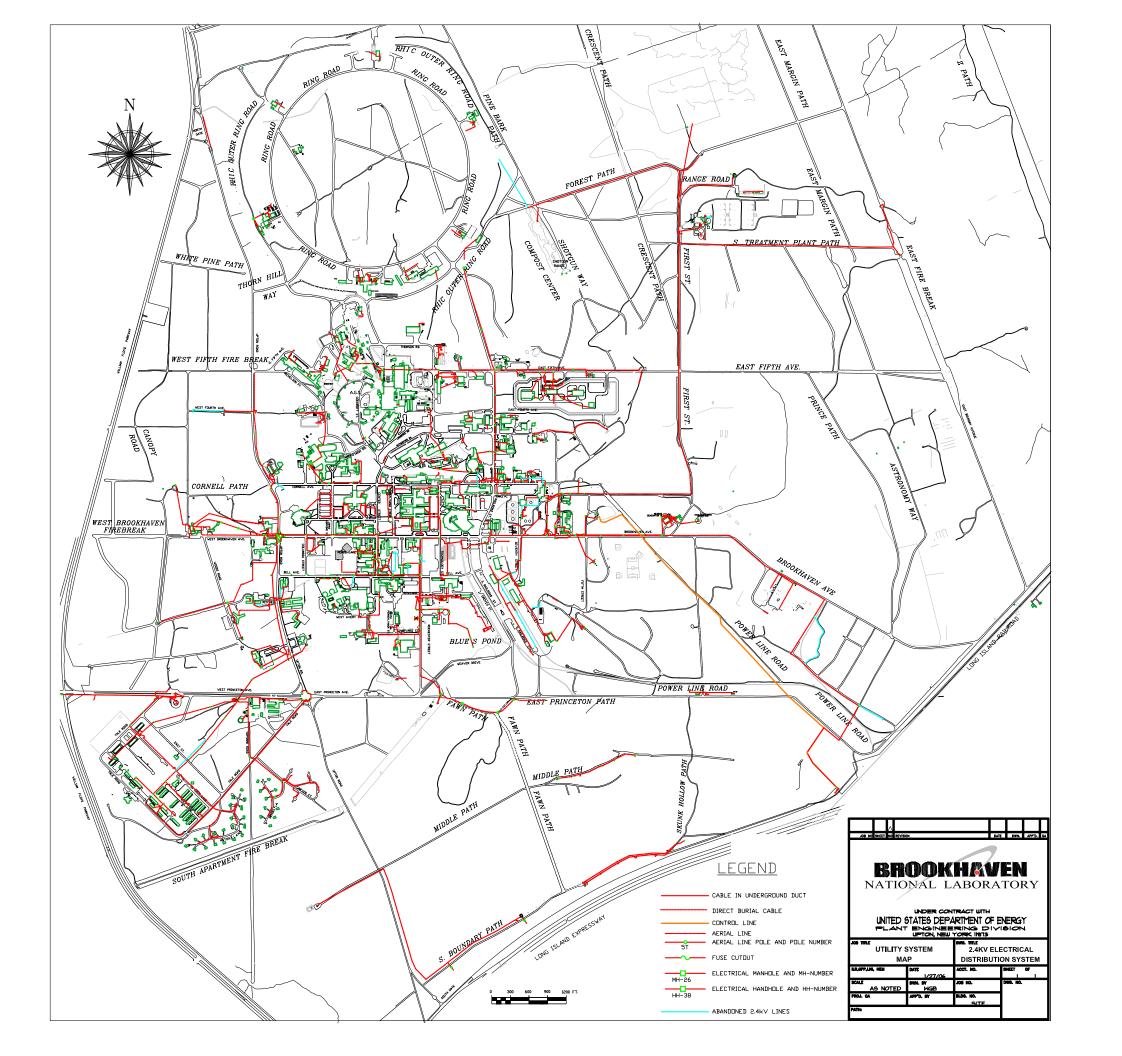
PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	2.4KV OH CABLE	2.4 Overhead Lines	1	2,792,762	8939	N -	-	2,331,581	Utilities - Electric
SC	2.4KV UG CABLE	2.4 Undergrd Cables	1	17,451,269	8939	N -	-	-	Utilities - Electric
SC	SUBSTA_H	H Substation	1	299,807	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_RF_MG	RF_MG Substation	1	273,946	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_N4	N4 Substation	1	275,759	8979	N -	-	-	Utilities - Electric
SC	13.8 OVERHEAD LINE	13.8kV Overhead Line	1	3,758,168	8929	N -	-	-	Utilities - Electric
SC	SUBSTA_E	E Substation	1	299,807	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_704	704 Transformer	1	71,117	8988	N -	-	-	Utilities - Electric
SC	SUBSTA_901	901 Transformer	1	377,675	8988	N -	-	-	Utilities - Electric
SC	ST0643	AGS Substation	1	372,236	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_603_2.4	603 2.4kV Substation	1	260,001	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_902E	902 East Substation	1	843,192	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_B	B Substation	1	764,119	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_K	K Substation	1	901,635	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_P	P Substation	1	211,854	8979	N -	-	-	Utilities - Electric
SC	ST0616	Substation	1	889,933	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_M	M Substation	1	2,289,349	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_631_13.8	Fifth Ave Substation	1	6,068,329	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_RF	RF Substation	1	488,418	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_5N	5N Substation	1	299,807	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_801	801 Transformer	1	28,514	8988	N -	-	-	Utilities - Electric

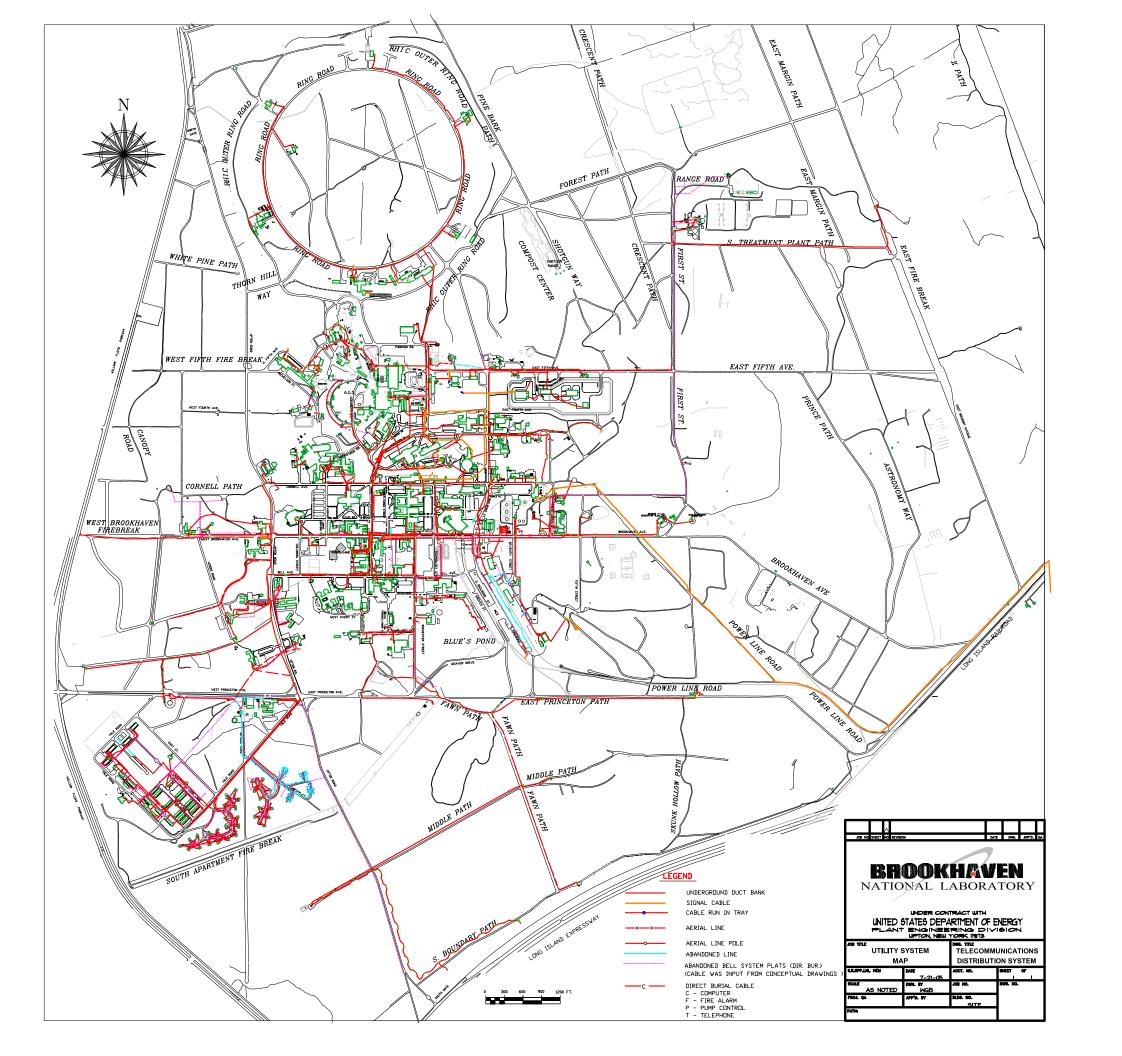
PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	13.8KV CABLE	13.8 Undergrd Cables	1	15,699,274	8939	N -	-	10,360,000	Utilities - Electric
SC	SUBSTA_3J	3J Substation	1	299,807	8979	N -	-	_	Utilities - Electric
SC	SUBSTA_F	F Substation	1	1,268,028	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_902W	902 West Substation A-West	1	260,797	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_C	C Substation	1	764,119	8979	N -	-		Utilities - Electric
SC	SUBSTA_603_13.8	Temple Place Substation	1	6,009,706	8979	N -	-		Utilities - Electric
SC	SUBSTA_479	Machine Shop B	1	548,145	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_7N	7N Substation	1	388,783	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_820	820 Transformer	1	197,289	8988	N -	-	_	Utilities - Electric
SC	SUBSTA_701	701 Substation	1	171,539	8979	N -	-	_	Utilities - Electric
SC	SUBSTA_G	G Substation	1	499,083	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_L	L Substation	1	1,029,740	8979	N -	-	_	Utilities - Electric
SC	SUBSTA_A	A Substation	1	720,129	8979	N -	-	-	Utilities - Electric
SC	ST0617	Substation	1	1,046,808	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_BC	BC Substation	1	528,281	8979	N -	-	-	Utilities - Electric
SC	SUBSTA_SB	SB Substation	1	613,262	8979	N -	-	-	Utilities - Electric
SC	ST0661	Substation at Rochester Street	1	1,284,329	8979	N -	-	-	Utilities - Electric
SC	WATER_POTABLE	Potable Distribution	1	9,509,627	8129	N -	574,000	10,437,000	Utilities - Potable Water
SC	WELL_1	Water Supply Wells No 1	1	632,936	5169	N -	-	_	Utilities - Potable Water
SC	WELL_12	Water Supply Well No 12	1	1,625,031	5169	N -	-	-	Utilities - Potable Water
SC	WELL_6	Water Supply Well No 6	1	1,278,023	5169	N -	_	-	Utilities - Potable Water

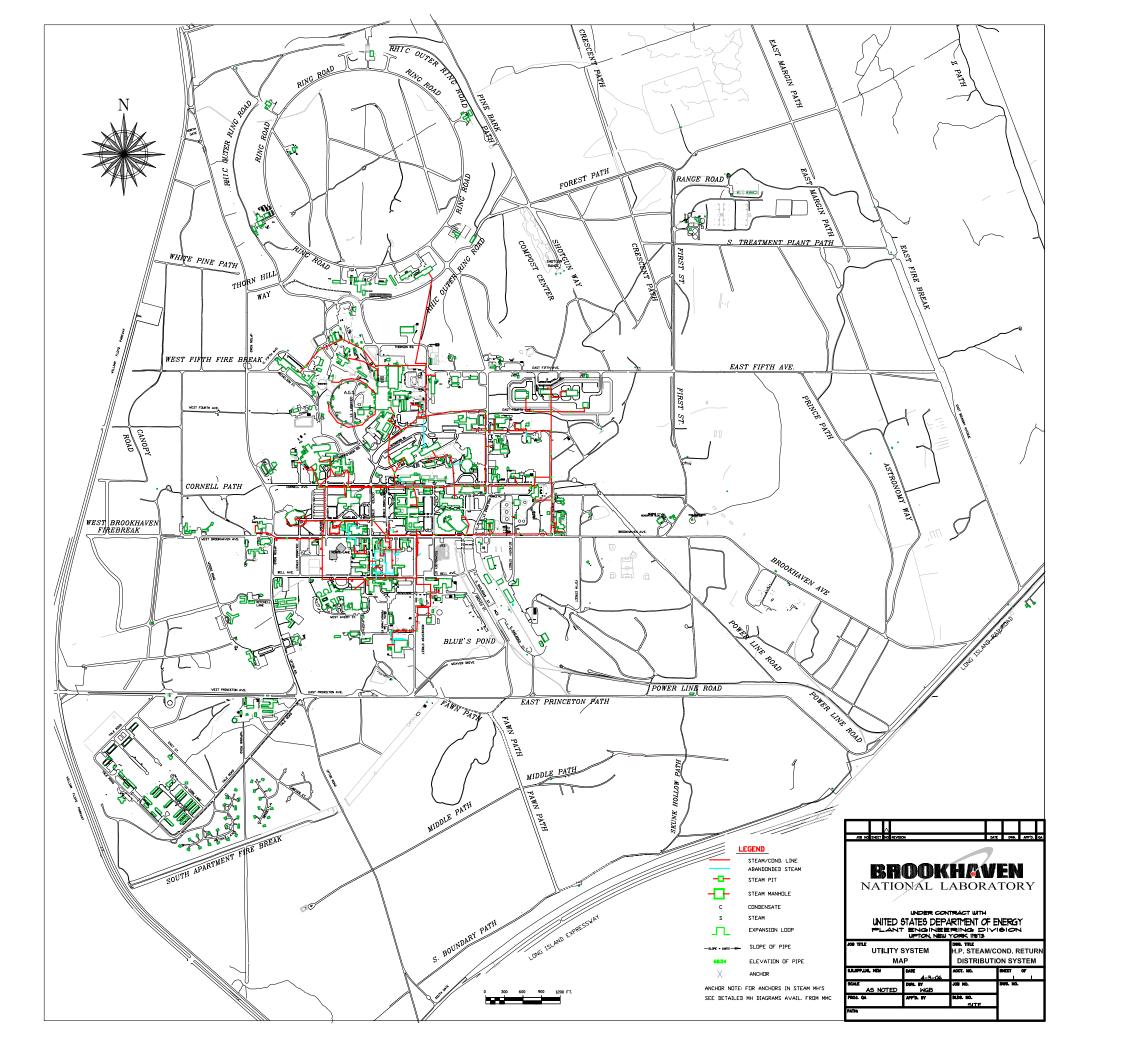
PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	WELL_10	Water Supply Well No 10	1	1,297,500	5169	N -	-	-	Utilities - Potable Water
SC	ST0640	Water Storage Tank	1	2,000,648	4121	N -	-	50,233	Utilities - Potable Water
SC	WELL_11	Water Supply Well No 11	1	1,126,939	5169	N -	-	-	Utilities - Potable Water
SC	WELL_4	Water Supply Well No 4	1	1,861,149	5169	N -	-	-	Utilities - Potable Water
SC	ST0049	Water Storage Tank	1	578,872	4121	N -	150,000	651,326	Utilities - Potable Water
SC	WELL_7	Water Supply Well No 7	1	1,278,111	5169	N -	-	-	Utilities - Potable Water
SC	WELL_2	Water Supply Well No 2	1	630,927	5169	N -	-	-	Utilities - Potable Water
SC	WATER_OTHER	Sewerage And Storm Other	1	1,161,328	5529	N -	-	-	Utilities - Potable Water
SC	SEWER_GRAV	Sewerage Sys Gravity	1	19,656,688	8529	N -	700,000	10,000,000	Utilities - Sanitary/Storm
SC	STORM_PUMP	Storm Water System Pumped	1	44,158	8649	N -	-	-	Utilities - Sanitary/Storm
SC	SEWER_PUMP	Sewerage System Pumped	1	1,287,401	8549	N -	-	-	Utilities - Sanitary/Storm
SC	STORM_GRAV	Storm Water System-Gravity	1	1,796,239	8629	N -	-	-	Utilities - Sanitary/Storm
SC	SEWER_PLANT	Sewerage Treatment Plant	1	11,954,816	5529	N -	-	-	Utilities - Sanitary/Storm
SC	610-BLR001A	Boiler 1A (B/610)	1	3,509,236	5839	N -	-	120,000	Utilities - Steam
SC	STEAM_SYS	Steam Supply System	1	55,564,541	8839	N -	3,100,000	15,000,000	Utilities - Steam
SC	610-BLR007	Boiler No. 7 (B/610)	1	3,509,827	5819	N -	-	-	Utilities - Steam
SC	ST0611F	Fuel Oil Tank #6 300K Gal.	1	426,995	4221	N -	-	-	Utilities - Steam
SC	ST0611E	Fuel Oil Tank #5 300K Gal.	1	915,715	4221	N -	-	-	Utilities - Steam
SC	CONDENSATE	Condensate Return System	1	13,025,706	8839	N -	-	-	Utilities - Steam
SC	STEAM_PLANT	Central Steam Plant (B/610)	1	160,100	4322	N -	-	-	Utilities - Steam
SC	6250555	Chemistry (B/555)	1	28,372	4322	N -	-	-	Utilities - Steam

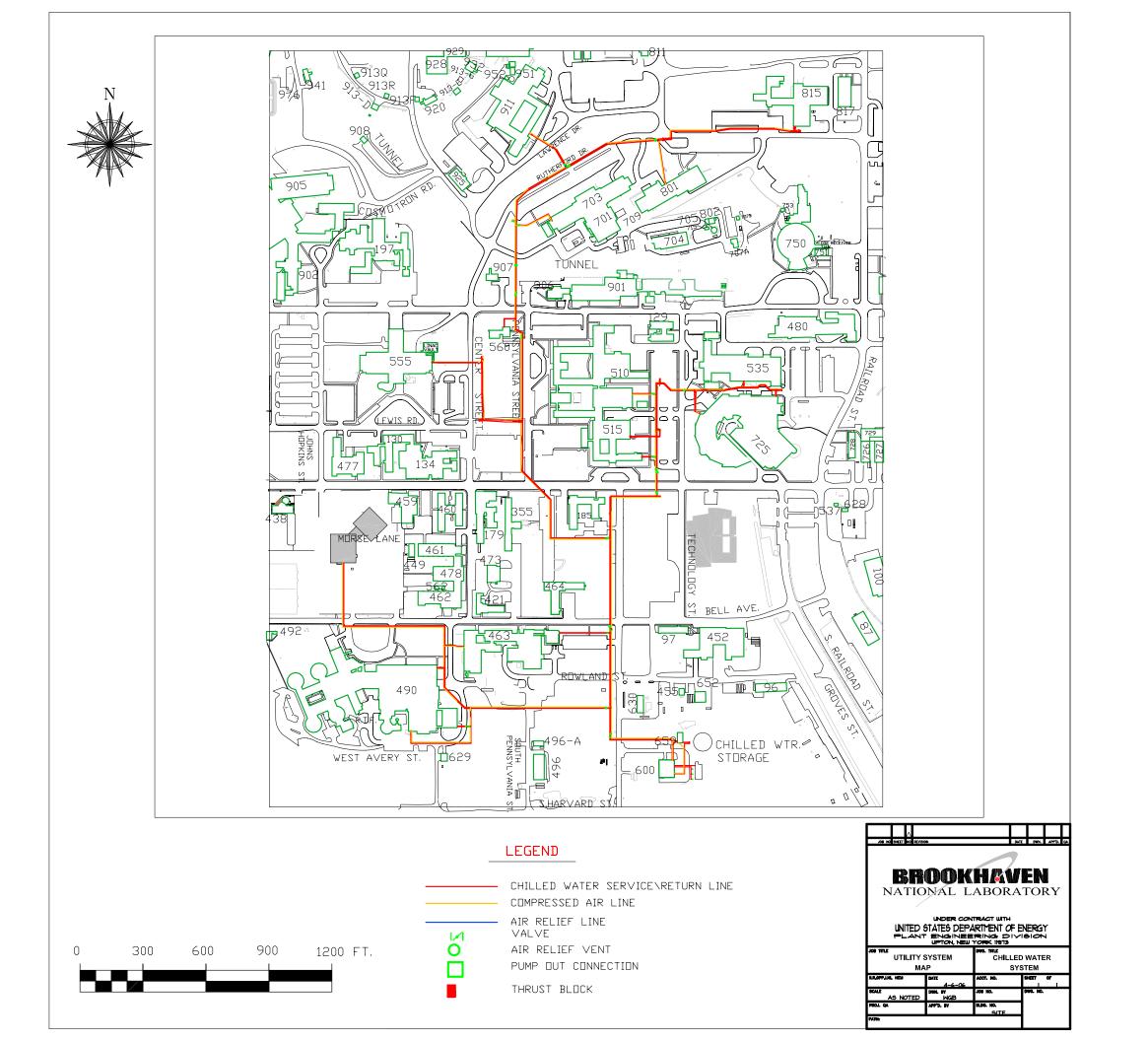
PS0	ID	NAME	ESN	RPV	USE	EXCESS	RHIC	DM	Туре
SC	610-BLR005	Boiler 5 (B/610)	1	16,742,882	5839	N -	-	-	Utilities - Steam
SC	610-BLR006	Boiler 6 (B/610)	1	7,280,099	5839	N -	-	-	Utilities - Steam
SC	ST0611C	Fuel Oil Tank #3 300K Gal.	1	861,244	4221	N -	-	-	Utilities - Steam
SC	ST0611H	Fuel Oil Tank #10 600K Gal.	1	61,452	4221	N -	-	-	Utilities - Steam
SC	HEAT_SYS_OTHER	Heating System Other	1	10,302,269	8839	N -	-	-	Utilities - Steam
SC	ST0611G	Fuel Oil Tank #9 400K Gal.	1	979,644	4221	N -	-	-	Utilities - Steam
SC	ST0611D	Fuel Oil Tank #4 420K Gal.	1	839,474	4221	N -	-	_	Utilities - Steam

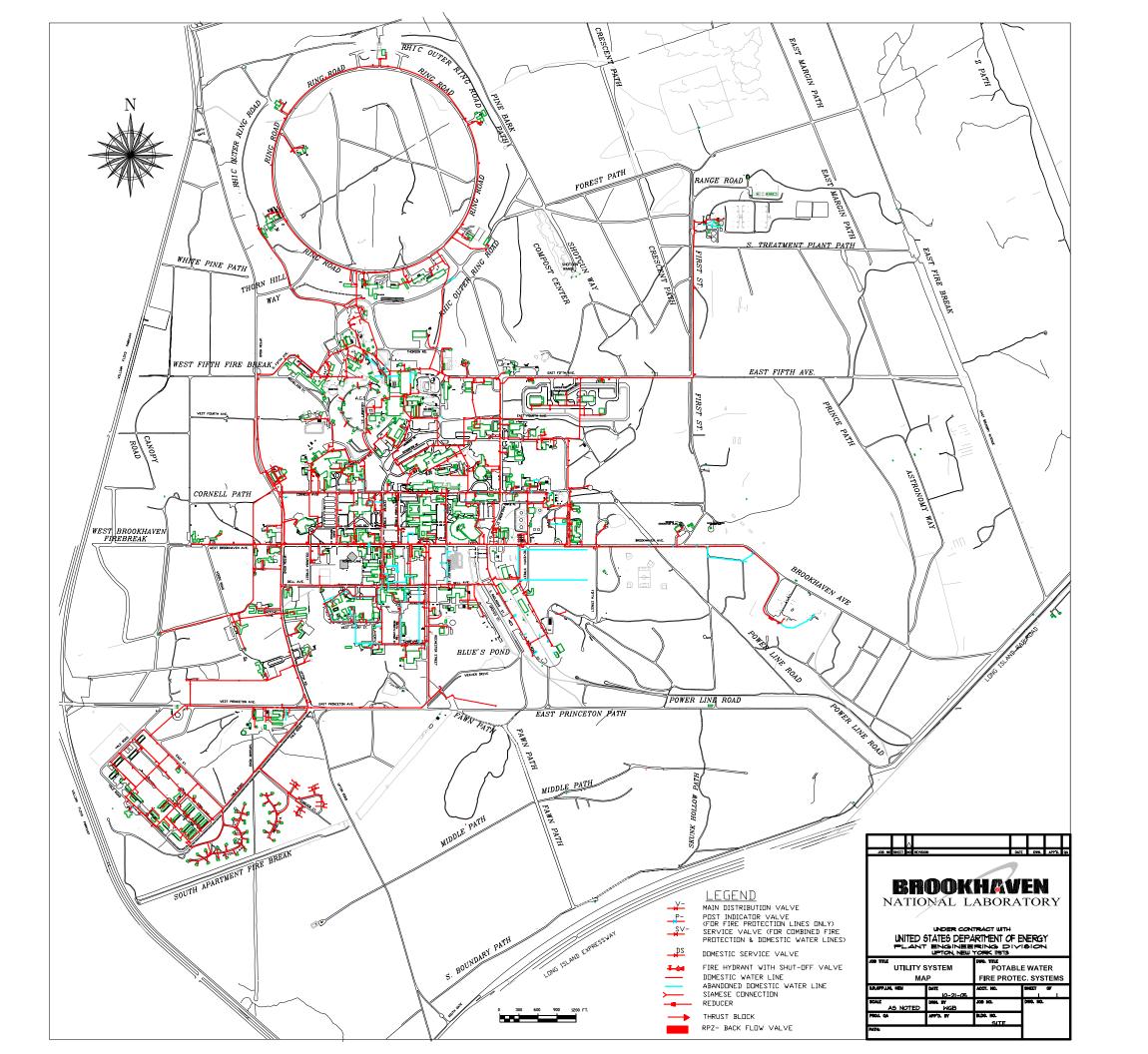


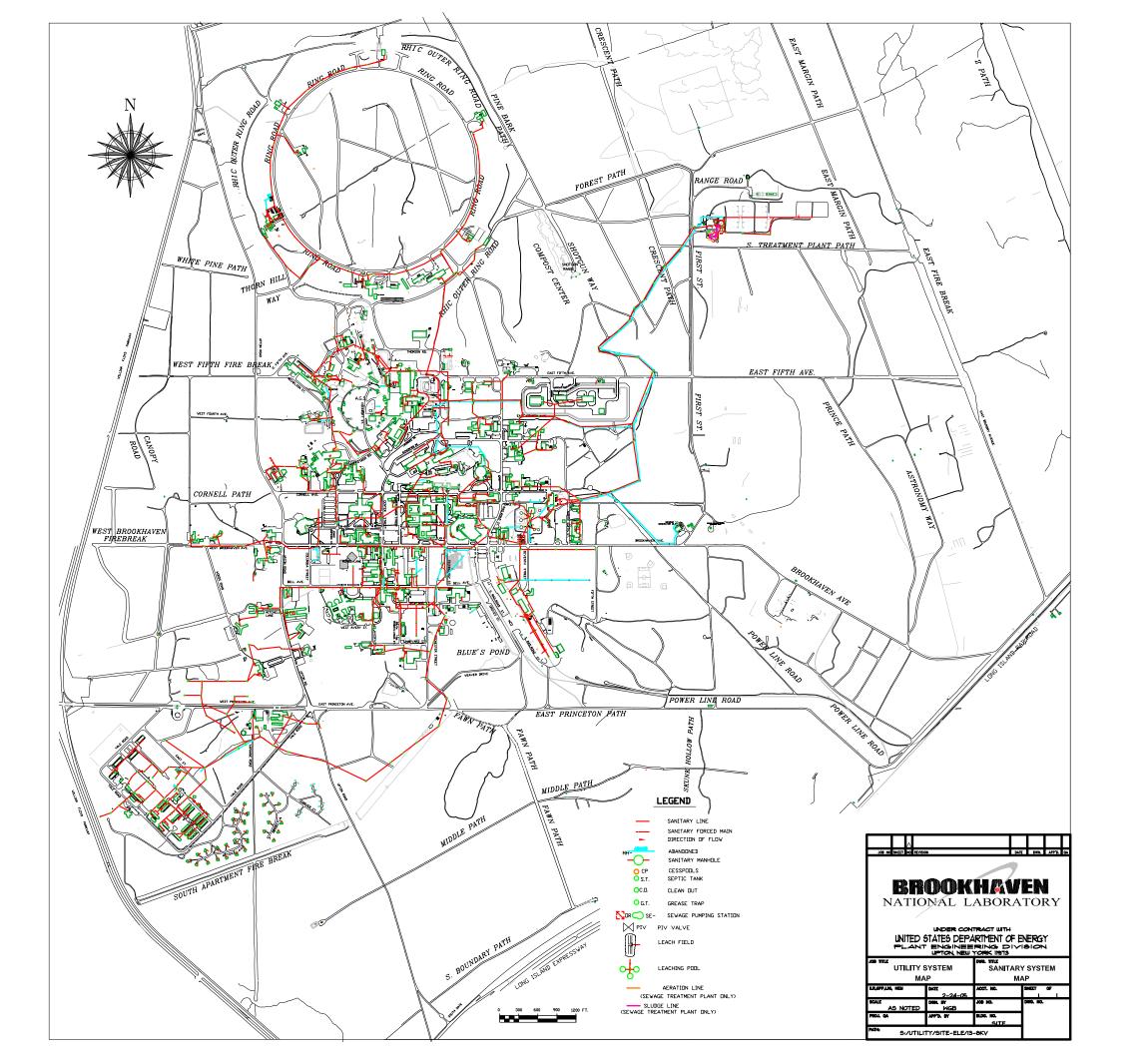


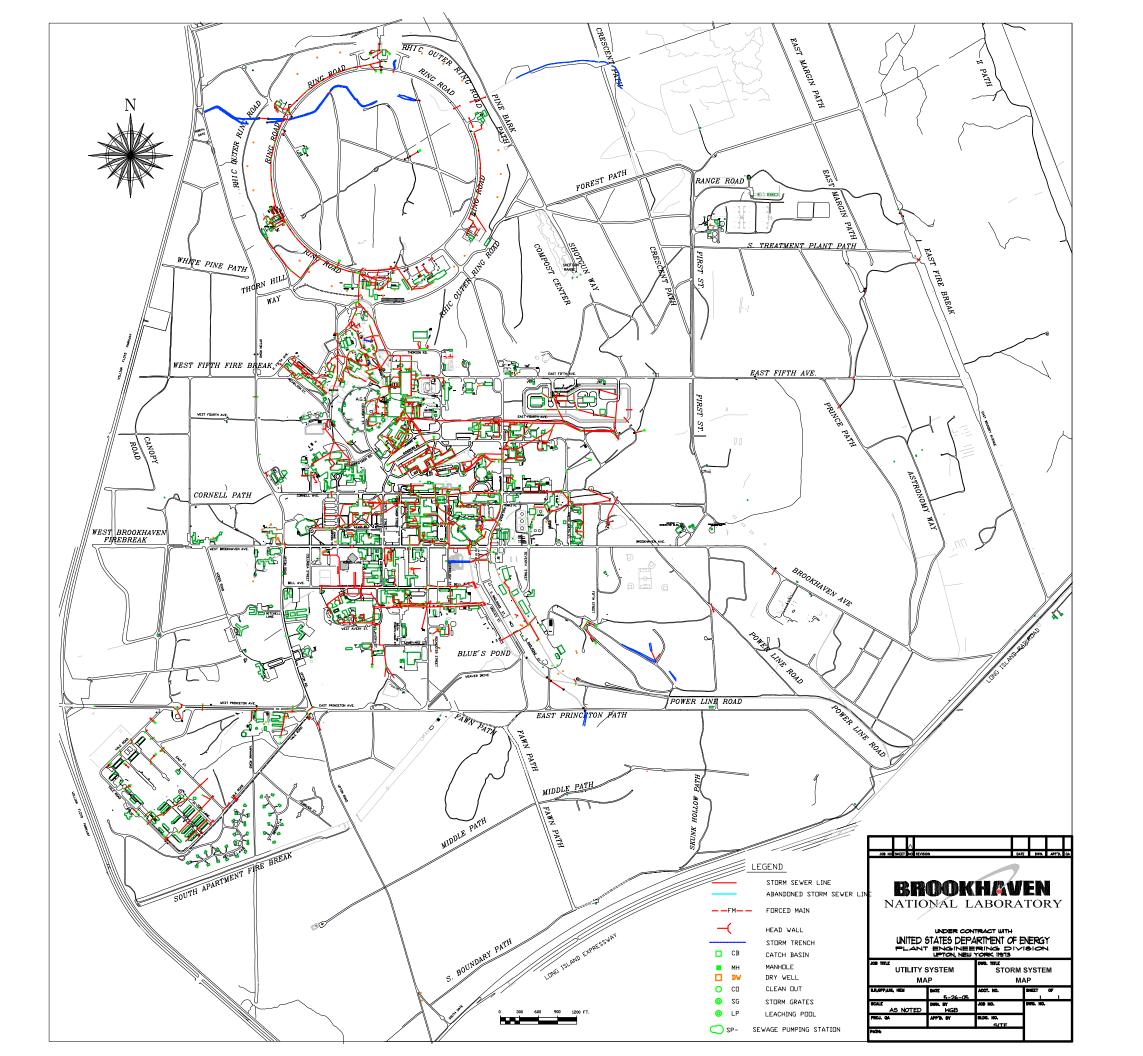


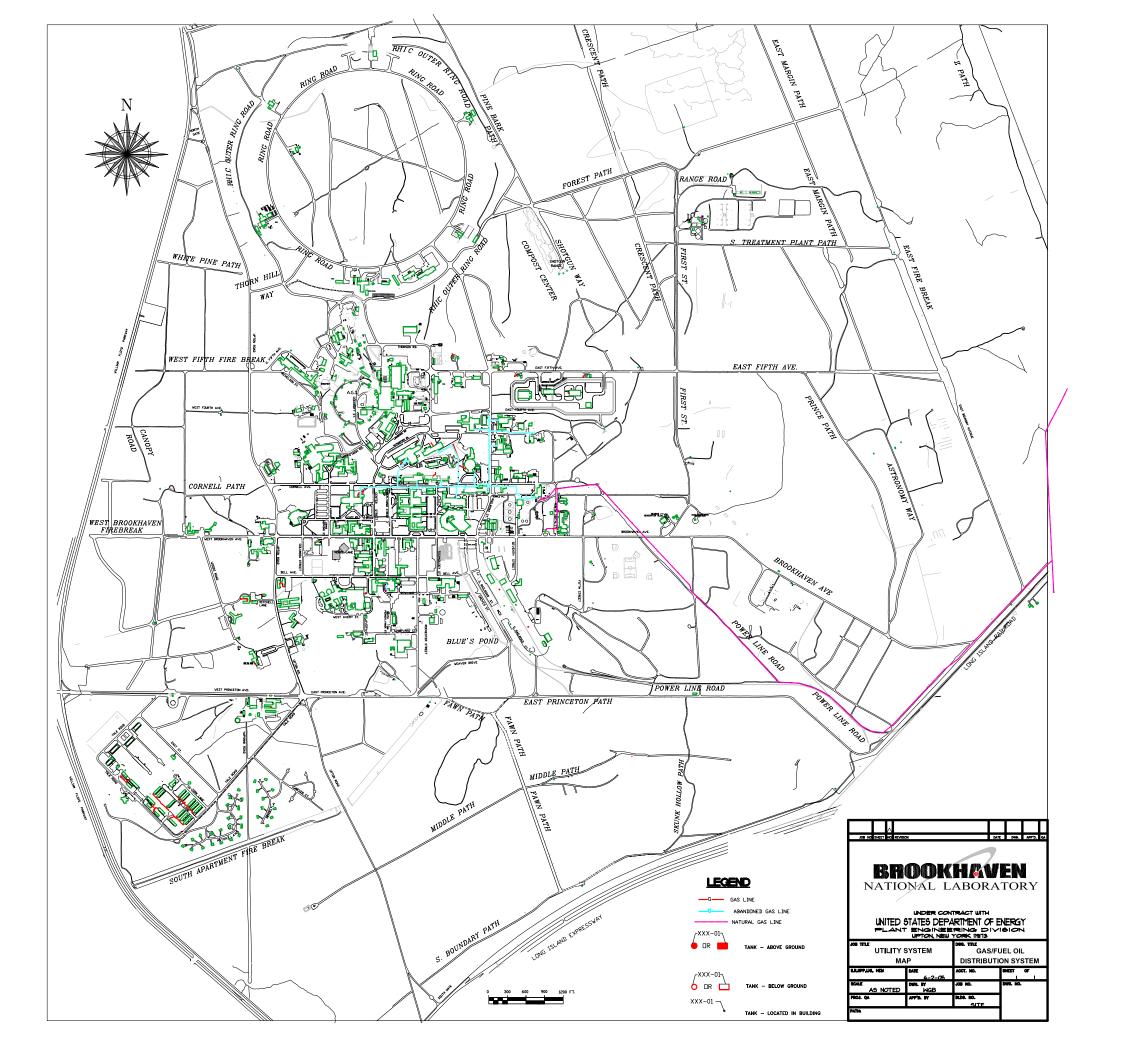


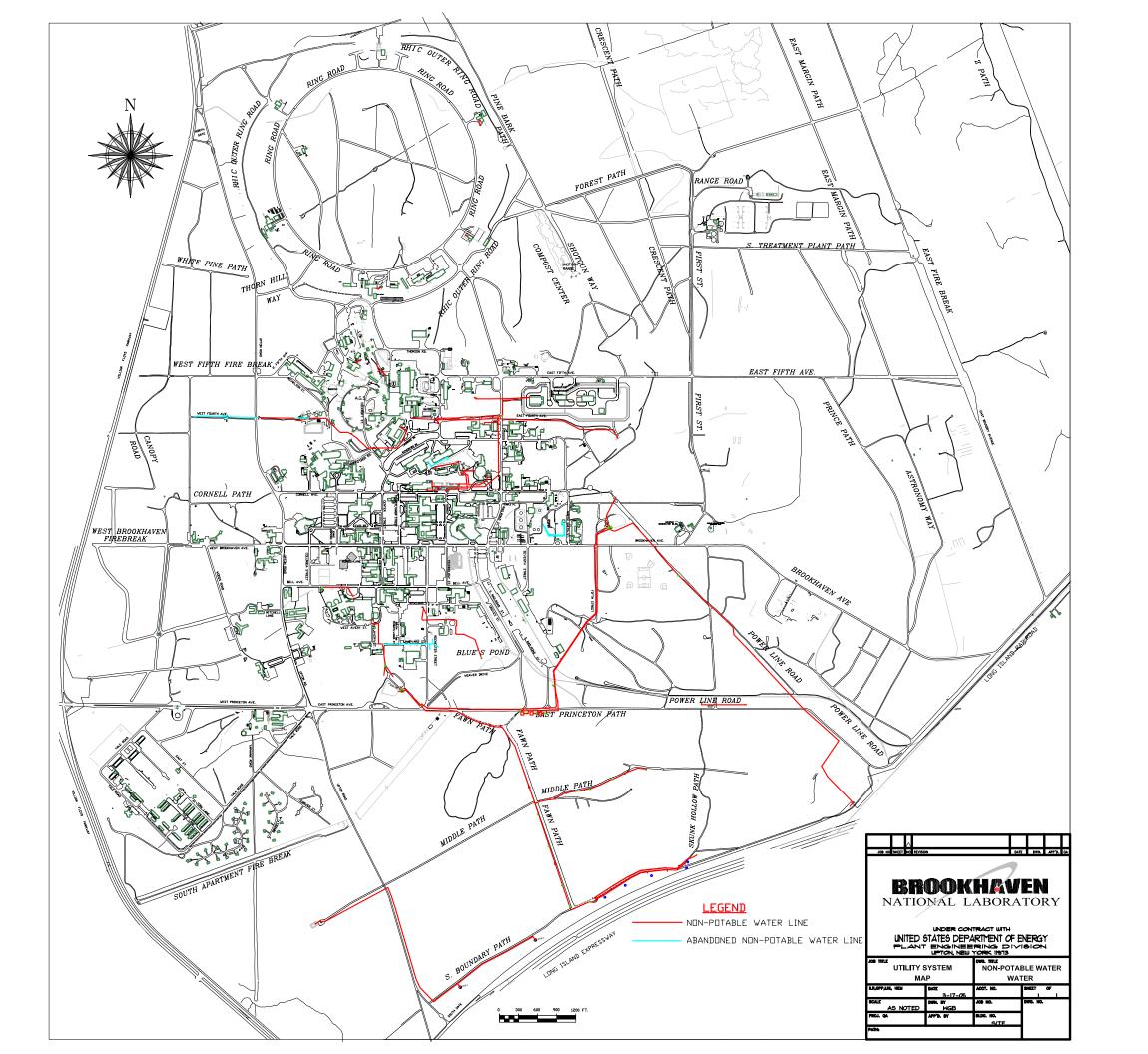


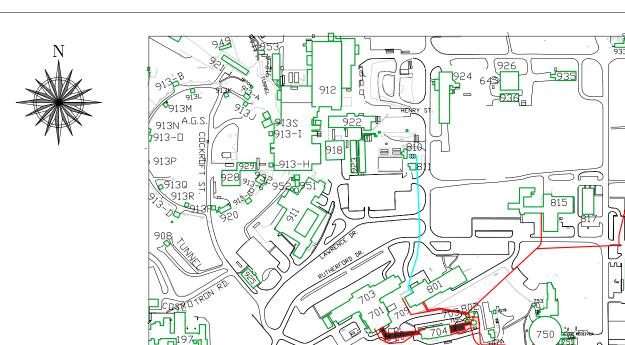






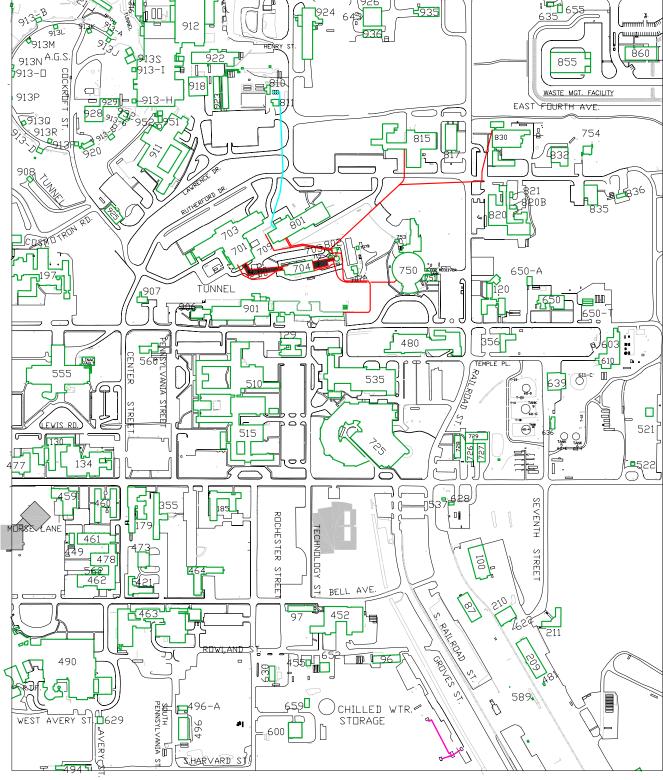






900

1200 FT.

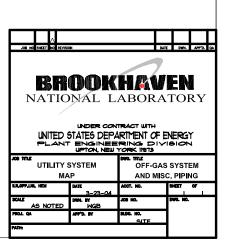


#### BLUE'S POND

### LEGEND

OFF-GAS DUCT BURIED AIR-PIPING ABANDONED OFF-GAS

EAST FIFTH AVE.



# APPENDIX 4 INTEGRATED FACILITIES AND INFRASTRUCTURE (IFI) CROSSCUTS

This section has the following IFI Crosscuts which where modified from the version submitted with the FY08 budget based on the guidance provided by DOE in the Ten-Year Site Plan Guidance document:

- Office of Science
- Office of Environmental Management

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. (\$000)	FY 06 Approp. (\$000)	FY 07 Approp. (\$000)	FY 08 Approp. (\$000)	FY 09 Approp. (\$000)	FY 10 Approp. (\$000)	FY 11 Approp. (\$000)	FY 12 Approp. (\$000)	FY 13 Approp. (\$000)	FY 14 Approp. (\$000)	FY 15 Approp. (\$000)	FY 16 Approp. (\$000)	FY 17 Approp. (\$000)
SITE NAME: Brookhaven National Lab															
PROGRAM: Science															
1.0 Capital Line Item															
1.1 New Construction (facilities and additions)															
Research Support Building - Ph I MEL-001-027 & PED 03-SC-01-002 & 03-CH-101-4, 39KG0100000	AA0D0030	65,000	6,363	3,646											
BNL Center for Functional Nanomaterials PED 02-SC-02-003 & 05-R-321, 39KC0200000	AA1D0005	94,500	30,313	26,438	10,989	213									
National Synchrotron Light Source II 07-SC-06	AA6D0021	350,000		8,000	8,000	46,786	52,583	33,724	15,827	3,541					
1.2 All Other Projects (recap)															
Renovate Science Labs - Ph 1															
07-CH-101-0, 39KG01000 Renovate Science Labs - Ph 1I	AA1D0017	$\longleftrightarrow$			4,600	8,200	5,200								
Renovate Science Labs - Pil II	AA1D0007	$\times$										4,000	16,000		
Subtotal Line Item Projects		509,500	36,676	38,084	23,589	55,199	57,783	33,724	15,827	3,541	0	4,000	16,000	0	0
2.0 General Plant Project (GPP) (Include project number & identify Funding Program)					,	·									
2.1 New Construction (facilities and additions)															
GPP - Nuclear Physics															
Security Access Control Facility - Main Gate	P98D0094	> <							250	500					
Expansion of B/560	A99D0038	> <					150	350							
Addition to B/911	AA0D0008	$\times$					500	1,500							
2.2 All Other Projects (recap)															
GPP - Nuclear Physics															
B/912 Power and Cooling Water Upgrades	AA4D0003	$>\!\!<$	500	125											
Replace Roof B/912 EEA and EEBA	AA3D0035	$\geq \leq$	724		500	515									
C-A Tritiated Cooling Water System Modifications	AA0D0007	$\geq \leq$	250		461										
C-A Area Storm Water Improvements	AA2D0084	$\geq \leq$	356	300	300	481									
Install Cooling Tower and Chiller B/555	AA3D0049	$\geq \leq$	1475	535											
High Bay Upgrade B/510	AA3D0041	$>\!\!<$	650												
Security System Improvements	AA2D0009	$>\!\!<$	100	110											
Modifications for Americans With Disabilities Act Compliance Phase III	AA2D0008	$\geq \leq$	66	84											
Upgrade of Labs W6 and W8, B/703	AA4D0082	$\geq \leq$	50	660											
Increase Chilled Water Capacity, B/902 JSW Cyclotron	AA4D0058	$>\!\!<$	100												
Upgrade Lab C1, B/815	AA4D0076	$\geq \leq$	400												
Chilled Water Modifications B/463 and B/510	AA4D0053	$>\!\!<$	70												
AGS MMPS Loss Prevention and Containment	A98D0167	$>\!\!<$		950											
Expand BCF Infrastructure, B/515	AA5D0064	$\geq \leq$		1600											
Upgrade 480V Breakers with Solid State Trips FY05	AA4D0097	$\geq \leq$	100	80	140										
New 2-12" Chilled Water Line, B/515	AA5D0065	$\geq \leq$		200											
Backflow Preventors B/463 Remaining	AA4D0093	$\geq \leq$	125	125											
Correction of OSHA Deficiencies - Capital	AA4D0070	$>\!\!<$	400	125	125										
Install Additional Smoke Detectors, B/725 X-Ray	AA4D0048	$>\!\!<$	100												
Site Prep RIKEN II, BNL Super Computer PH II	AA5D0001	$>\!\!<$	80												

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. (\$000)	FY 06 Approp. (\$000)	FY 07 Approp. (\$000)	FY 08 Approp. (\$000)	FY 09 Approp. (\$000)	FY 10 Approp. (\$000)	FY 11 Approp. (\$000)	FY 12 Approp. (\$000)	FY 13 Approp. (\$000)	FY 14 Approp. (\$000)	FY 15 Approp. (\$000)	FY 16 Approp. (\$000)	FY 17 Approp. (\$000)
mirasti ucture Budget Bata Sheet (IF1)	rumber	.neu	(\$000)	(4000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$600)	(\$600)	(\$000)	(\$600)	(4000)	(\$600)
SITE NAME: Brookhaven National Lab															
PROGRAM: Science															
Emergency Power Improvement B/463	AA4D0079	$\overline{}$	50	375											í
Upgrade BCF Fire Detection System, B/515	AA4D0071	$\sim$	65												
Reconfigure Walls BCF, B/515	AA4D0056	$\sim$	60												
BCF Modifications for RHIC Robots, B/510	AA2D0044	>	100												
Diesel Emissions Exhaust System	AA4D0085	>	65												
Install Bollards for Propane Fill Tanks	AA4D0035	$\sim$	66												
RHIC Paving - PHENIX Gas Area and B/1008	AA4D0084	$\sim$	40												
Oxygen Deficiency Monitoring, Mechanical Rooms	AA0D0062	$\sim$	50												
B/725 Upgrade South Westinghouse Elevator	AA2D0082	>		20	230										
Upgrade B/510 Freight Elevator	AA5D0002	>	40	20	240										
Upgrade Labs 2-115, 2-116 and 2-117, B/510	AA4D0083	>			335	1049									
Hydraulic Elevator Upgrade B/463	AA3D0054	>		26	149	1010									
RAD Detector and Evaluation Center (RADTEC) Enhancement	AA5D0034	>		330	143										
Smoke Detection B/515 BCF Under Floor and Above	AA5D0013	$\Leftrightarrow$		100											
	AA5D0012	$\iff$		100	400										
Emergency Power Replacement B/912 PH I  Structural Modifications for Drill, B/535	AA5D0013 AA5D0038	$\Leftrightarrow$		90	400										
*		$\Leftrightarrow$													
Fiber Cable Installation CFN and RSB Security	AA5D0027	$\Leftrightarrow$		110	205										
Install A/C RHIC Power Supply Houses	AA5D0035	$\Leftrightarrow$		325	325										
New 10" Water Main at Rutherford and Cornell	AA5D0033	$\Leftrightarrow$		50	300										
Lighting Contactors	AA5D0028	$\Leftrightarrow$		50	100	150									
Off-Gas Stack Replacement, B/801	AA1D0101	$\Leftrightarrow$		60	770										
Liquid Nitrogen Conduit Infrastructure for NSLS X-Ray Ring	AA5D0010	$\sim$			70	450									
Replace Fire Alarm Panel And Upgrade System B/911A Annex	AA5D0055	$\stackrel{\sim}{\longrightarrow}$			320										
Replace Fire Alarm Panel and Upgrade System B/510 Loading Dock	AA5D0056	>			155										
BCF Emergency Power and HVAC Disconnection System	AA5D0025	>			200										
BNL Sitewide Eyewash and Safety Shower Upgrade	AA1D0106	$\sim$			200	200	200	200							
Expand BCF Infrastructure, Lab A B/510	AA5D0018	$\ll$			900										
Conference Room Upgrade, B/460	A99D0096	$\ll$			125										
Renovation of Biology Department Conference Room	AA1D0061	>			150										
Archive Records Storage Fire Protection Upgrade B/494	A96D0039	$\geq \leq$				93									
Steam System Improvements Sitewide	AA1D0085	$\geq \leq$			300	300	600	900	300	300	300	300	300	300	300
Backflow Preventors Backlog	AA1D0045	$\geq \leq$			125	125	125	625	125	125	125	125	125	125	125
Roof Replacement Backlog	A98D0014	$\geq \leq$					700	900	500	500	500	500	500	500	500
Replace Various Fire Alarm Panels Sitewide	AA1D0003	$\geq \leq$				150									
Recolds Holding Area Upgrade	N98D0041	$\geq \leq$				150									
Air Conditioning Meeting Space North Room Brookhaven Center	A98D0113	$\geq \leq$				656									
Fiber Cable WWTF: Update Ethernet Control System	AA4D0065	> <				100									
Site Emergency Generator Resistive Loadbank	A98D0024	$\geq$				390									
Install New North Gate Security Booth and Roadway	A94D0004	$\geq <$				120									
Increase CCWF Cooling Tower Capacity	AA2D0071	> <				500	1300								
Security System Improvements FY07-09	AA4D0027	> <			100	100	100								
Modifications for Americans With Disabilities Act Compliance FY07-09	AA4D0029	> <			50	50	50								

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. (\$000)	FY 06 Approp. (\$000)	FY 07 Approp. (\$000)	FY 08 Approp. (\$000)	FY 09 Approp. (\$000)	FY 10 Approp. (\$000)	FY 11 Approp. (\$000)	FY 12 Approp. (\$000)	FY 13 Approp. (\$000)	FY 14 Approp. (\$000)	FY 15 Approp. (\$000)	FY 16 Approp. (\$000)	FY 17 Approp. (\$000)
SITE NAME: Brookhaven National Lab															
PROGRAM: Science															
Temperature/Humidity Control Modifications to PC Lab B/535	A99D0057	> <				130									
BNL Vehicle Radiation Monitor Replacement	AA3D0024	> <				95									
Convert Cubicles to Lab Space for Genome B/463	AA1D0072	> <				70									
Additional Vehicle Parking B/911	AA1D0086	> <				85									
Replace 6" Piping North of B/905, Hydrant 243	AA5D0034	> <				233									
B/810/811 Surface Improvement of D-Tanks #3 and #4	AA5D0030	> <				25									
Machine Shop Expansion B/801	AA1D0100	> <				109									
Back Pressure Control Enhancements (B/701 Piping Mod)	A98D0016	>>				60									
Electrical Service for B/487	AA5D0017	>>				120									
New Transformer #9	N98D0086	>>				274	1526								
B/610 Exterior Repairs	A98D0101	>>				450									
Cryogen Energy Saving B/902 Cryo Operations	AA1D0131	>					350								
Relocate External Air Intake B/535	A99D0059	$\overline{}$					50								
Asbestos Abatement B/488	A92D0130	>					700								
Emergency Power B/30 and B/321	AA4D0078	>					200								
B/479 Air Conditioning Phase II	N98D0088	>					225								
Sanitary Main Radiation/pH Level Detection Systems	A99D0006	>					200	500							
Gas Detector Clean Room Upgrade	A98D0082	>					80	300							
Ductless A/C B/535 Rooms B-108A, B-108B, B-113, B-113A	A99D0056	>					45								
Security Improvements B/449	AA2D0085	$\Leftrightarrow$					30								
Collider Accelerator Steel Yard Paving	AA3D0027	$\Leftrightarrow$					269	431							
13.8 kV Distribution Reinforcement - Phase I	N98D0107	$\Leftrightarrow$					203	375							
YAG Laser Mezzanine Extension	P98D0030	$\Leftrightarrow$						150							
Replace Transite Water Mains at Brookhaven Ave. and Princeton Ave.	A98D0030	$\Leftrightarrow$						500							
<u>'</u>	AA4D0088	$\Leftrightarrow$						45							
Relocate B/725 Liquid Nitrogen Delivery Fill Station	AA1D0088	$\Leftrightarrow$						264	500						
Princeton/Upton Intersection and Signal Improvements		$\Leftrightarrow$						264	536	750					
13.8 kV Distribution System Reinforcement Phase II	N98D0108	$\Leftrightarrow$						000	250	750					
Connection of Well 102 to Supply System  CCWF Tower Blowdown Modification	A99D0061 N98D0116	$\Leftrightarrow$						300 50							1
		$\Leftrightarrow$							000						
Elimination of Water Treatment Chemicals at AGS	A98D0168	$\Leftrightarrow$						300	200						
Hazardous Material Protection Security Improvement Phase I	AA4D0057	$\Leftrightarrow$							150						
Reinforce B/725-B/535 Tunnel for Helium Recovery	AA4D0057	$\Leftrightarrow$							75						
Power Monitoring System	P98D0018	$\Leftrightarrow$							375						
New Traffic Lights at Main Gate	A98D0174	$\Leftrightarrow$							120						
TTB Power Supply Houses Fire Suppression System	A97D0002	$\Leftrightarrow$							300						
Remove Flammable Foam Duct Insulation Sitewide	A93D0005	$\Leftrightarrow$							500						
Cable Tray Upgrade C-A Department	X92D0144	$\Leftrightarrow$							400						
Security Improvements to Water System	AA4D0047	$\stackrel{\sim}{\longleftrightarrow}$							150						
Upgrade Line Drivers for Site Fire Alarm System	A96D0012	$\iff$							100						
B/936 Insulate and Heat	N98D0032	$\stackrel{\sim}{\longrightarrow}$							40						
Apartment Area Potable Water Piping Replacement	N98D0064	$\langle \rangle$								816					
Security System Improvements FY10 - FY12	AA4D0028	$\sim$						100	100	100					

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. (\$000)	FY 06 Approp. (\$000)	FY 07 Approp. (\$000)	FY 08 Approp. (\$000)	FY 09 Approp. (\$000)	FY 10 Approp. (\$000)	FY 11 Approp. (\$000)	FY 12 Approp. (\$000)	FY 13 Approp. (\$000)	FY 14 Approp. (\$000)	FY 15 Approp. (\$000)	FY 16 Approp. (\$000)	FY 17 Approp. (\$000)
init asti ucture Budget Bata Sheet (11-1)			(4223)	(4===)	(4===)	(4555)	(4000)	(4===)	(\$111)	(4===)	(4===)	(4000)	(4===)	(4000)	(4===)
SITE NAME: Brookhaven National Lab															
PROGRAM: Science															
Modication for Americans With Disabilities Act Compliance FY10 - FY12	AA4D0030	><						50	50	50					
Hazardous Material Protection - Security Improvement Phase II	AA0D0039	> <								250					
Neutron Detector Test Facility	A99D0080	$\times$							500						
Upgrade AGS Power Distribution System Fan House A	P98D0010	$>\!\!<$							200						
Upgrade AGS Power Distribution System Fan House B	P98D0026	> <							200						
Shield Upgrade for AGS Ring Hatches	X92D0108	> <							200						
Fire Suppression System Maintenance Area Clean Air Act Upgrade	B94D0027	$\supset \subset$							75						
Rupture Disk Relief Valves R-11 Chillers	P95D0002	$\supset \subset$							126						
Site Fire Alarm System Fiber Optic Cable Upgrades	B94D0028	>>							525						
Upgrade AGS Power Distribution System North Target Building	P98D0028	> <								200					
Upgrade AGS Power Distribution System South Target Building	P98D0029	${}$								200					
Replacement of Site Fire Alarm System Computers	A93D0168	$\supset$							493	707					
B/463 Renovation of Lab 116	A99D0074	$\supset$							500						
Additional Lighting Cafeteria Dining Area	AA1D0077	$\supset$							200						
B/479 Air Conditioning Phase III	N98D0075	$\sim$							200	200					
Upgrade AGS Power Distribution System Fan House C, D, E	P98D0027	$\sim$								800					
B/463 Renovation of Lab 118	A99D0075	$\supset$								500					
Replacement of New A/C Equipment (5) AGS Fan Houses	A98D0046	>								425					
Extend Steam Main to B/422 and B/244	A98D0089	>								150					
Water Main Replacement Technology Street	A99D0003	$\sim$								912					
Install A/C Lower Lobby B/30	AA5D0039	$\sim$								50					
Construct Elevator Room Fire Rated Enclosures	A98D0188	>								50					
B/911 Cooling Water Supply	AA2D0059	>								100					
New Tile Floor Throughout B/535	A98D0086	>								100					
Canopy Over Gas Pumps, Public Service Station	AA1D0069	$\sim$								135					
Various New Projects TBD	Various	>				87	173	298	412	640	8,063	8,512	8,984	9,479	9,999
Subtotal GPP Nuclear Physcis:		>	6,082	6,550	7,070	7,317	7,573	7,838	8,152	8,560	8,988	9,437	9,909	10,404	10.924
			-,	3,223	.,	7,021	,,,,,,	.,,,,,	-,	0,000	0,500	.,	.,	,	10,727
3.0 Institutional General Plant Project (IGPP)  None		т т					1					1		1	
Subtotal IGPP Projects	$\sim$	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			- 1												
4.0 Operating/Expense for Excess Elimination and Ot 4.1 Excess Elimination (demolition, sale, lease, transfer)	ner		1				1					1		1	
Show area eliminated in Gross Area column	$\times$	$\times$													
Excess Facilities Demolition -05(B/197A,208,933B,934)	N98D0099	10,157	405												
Excess Facilities Demolition -06(527,86,628,482,649,422A,650/650A Phl)	N98D0099	19,452		600											
Excess Facilities Demolition -07 (B/650/650A Ph II)	N98D0099	1,246			697										
Excess Facilities Demolition - 08 (B/130, B/134 Ph I) Note 1	N98D0099	15,962				700									
Excess Facilities Demolition - 09 (B/134 Ph II)	N98D0099	30,593					700								
Excess Facilities Demolition - 10 (B/650/650A PhIII)	N98D0099	n					. 30	700							
Excess Facilities Demolition - 11 (B/650/650A Ph IV)	N98D0099	0							700						
Excess Facilities Demolition - 12 (B/650/650A Ph V)	N98D0099	0							.00	700					
Excess Facilities Demolition - 13 (B/650/650A Ph VI)	N98D0099	0								700	700				
Excess Facilities Demolition - 14 (B/650/650A Ph VII)	N98D0099	0									700	700			
EAGESS 1 ACHINES DEHICHROH - 14 (D/000/000/APH VII)	149000099	U										700			

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Science Blocks $1-4\,$

6/1/2006

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. (\$000)	FY 06 Approp. (\$000)	FY 07 Approp. (\$000)	FY 08 Approp. (\$000)	FY 09 Approp. (\$000)	FY 10 Approp. (\$000)	FY 11 Approp. (\$000)	FY 12 Approp. (\$000)	FY 13 Approp. (\$000)	FY 14 Approp. (\$000)	FY 15 Approp. (\$000)	FY 16 Approp. (\$000)	FY 17 Approp. (\$000)
SITE NAME: Brookhaven National Lab															
PROGRAM: Science															
Excess Facilities Demolition - 15 (B/650/650A Ph VIII)	N98D0099	13,654											700		
Excess Facilities Demolition - 16 (B/492,B/459)	N98D0099	15,546												700	
Excess Facilities Demolition - 17 (B/811)	N98D0099	1,906													700
4.1 Subtotal	$\times$	98,359	405	600	697	700	700	700	700	700	700	700	700	700	700
4.2 All Other Direct(List direct O&E maintenance under 5	.j)><<	$\times$													
None	$\overline{}$	$\times$													
4.2 Subtotal	$\mathbb{N}$	$\times$	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Operating/Expense Projects	$\setminus$	$\times$	405	600	697	700	700	700	700	700	700	700	700	700	700
TOTAL Capital & Operating Investment:	$\times$	$\times$	43,163	45,234	31,356	63,216	66,056	42,262	24,679	12,801	9,688	14,137	26,609	11,104	11,624
TOTAL Overhead Investments (IGPP)	> <	$\geq \leq$	0	0	0	0	0	0	0	800	0	0	0	0	0
Note 1 - Modular bldg ( 3,687 sf) part of B/130 to be relocated to B/185 as part	art of space co	nsoiidation	plan.												

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Science Blocks $\mathbf{5} - \mathbf{6}$

Integrated Facilities and		Gross	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Infrastructure Budget Data Sheet (IFI)	Project Number	Building Area	Approp. (\$000)												
mii asti ucture Buuget Data Sheet (IF1)	Number	Aiea	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(3000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
SITE NAMEBrookhaven National Lab															
PROGRAM: Science															
5.0 Maintenance & Repair															
5.1.1 Direct Funded (SC Programs) Note 1,2															
High Energy Physics	KA	><	60	60	60	60	60	60	60	60	60	60	60	60	60
Nuclear Physics	KB	><	1,127	1,127	1,150	1,200	1,224	1,250	1,276	1,304	1,333	1,362	1,392	1,422	1,453
Basic Energy Science	KC	$\times$	850	850	867	961	986	1,007	1,027	1,048	1,071	1,094	1,119	1,143	1,168
Biological & Environmental Research	KP	><	30	30	30	35	30	30	30	30	35	35	35	35	35
Safeguard & Security	FS	$\sim$	101	101	105	0	0	0	0	0	0	0	0	0	0
Groundwater Projects (LTRA)	EZ061230	$\sim$	0	0	0	0	0	0	300	311	286	297	307	319	330
BGRR (LTRA)	EZ061240	> <	0	0	0	0	0	0	269	276	283	291	298	306	313
HFBR (LTRA)	EZ1212410	> <	0	0	0	0	0	0	488	498	508	519	529	540	551
Subtotal direct SC programs		$\sim$	2,168	2,168	2,212	2,256	2,300	2,347	3,450	3,527	3,576	3,657	3,740	3,825	3,910
Direct Funded (Non-SC Programs in SC Buildings)	Various	> <	123	123	125	128	131	133	136	139	141	144	147	150	153
Total Direct			2,291	2,291	2,337	2,384	2,431	2,480	3,586	3,666	3,717	3,801	3,887	3,975	4,063
5.1.2 Total Direct Funded (SC DM Reduction Program)															
Roof Replacement B/703 West Wing	AA5D0053	$\sim$	0	380	0	0	0	0	0	0	0	0	0	0	0
Sealing & Calking of Exterior Walls B/555	AA5D0043	$\sim$	0	260	0	0	0	0	0	0	0	0	0	0	0
Replace Fire Alarm Panel B/555	AA4D0095	>>	0	110	0	0	0	0	0	0	0	0	0	0	0
Subtotal direct SC DM reduction program		$\sim$	0	750	0	0	0	0	0	0	0	0	0	0	0
		> <													
Total Direct Maintenance & Repair	><	>>	2,291	3,041	2,337	2,384	2,431	2,480	3,586	3,666	3,717	3,801	3,887	3,975	4,063
·															
5.2.1 Indirect (from Overhead or Space Charges)															
PE Maintenance Budget (100% Space Charge)	Various		17,869	18,460	19.090	19,758	20.449	21,165	21,906	22,672	23,465	24,285	25,134	26,013	26,013
Chargeback from Indirects, Non-Cap	Various	>	1,571	1,619	1,676	1,814	1,875	1,938	2,003	2,070	2,139	2,211	2,285	2,361	2,361
Other Divisions Indirect Maintenance	Various	>	617	528	546	566	585	606	627	649	672	695	720	745	745
BNL MaintenanceProjects (G&A & Space) - See Listing Below	Janous		017	328	340	300	383	300	327	349	3/2	093	720	743	,43
Air Handler Replacements K-3,6	AA1D0132		17												
Gym Rehab	AA3D0003	>	6												
Replacement Air Conditioner B/449	AA0D0044	$\overline{}$	77												
Repair Steam Main Servicing B/560	AA4D0086	$\overline{}$	140												
Emergency Power B/599 and B/449	AA4D0086	>	140												
Remove/Replace Five Old Underground #2 Fuel Tanks	AA3D0025	$\overline{}$	145												
Replace Fire Alarm Panels, B/555	AA4D0025	$\overline{}$	3												
Atlas Physics Analysis Center	AA4D0095	>	71												
nuas mijoros nudijois Genter	A-4D0000	$\overline{}$	71												

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Science Blocks $\mathbf{5} - \mathbf{6}$

Integrated Facilities and		Gross	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Infrastructure Budget Data Sheet (IFI)	Project Number	Building Area	Approp. (\$000)												
Interest units of Dauges Durin Street (II 1)															
SITE NAMEBrookhaven National Lab															
PROGRAM: Science															
Roof Replacement B/490 Block 11 Animal Wing	AA4D0089	>>	455												
Replace Fire Alarm Panels, B/921 & B/449	AA4D0094	><		90											
Roof Replacement B/480 Hi-Bay Balance	AA4D0091	$\geq \leq$	102	135											
Renovate Lab 9-801, B/490	AA4D0052	><	19		205										
Heat Detector Replacement Project	AA2D0074	><	159	93	345										
Renovate Lab Suite 267/270, B/463	AA4D0064	><	22	50	770										
Correction of OSHA Deficiencies Maintenance	AA4D0070	><		560	369										
Replacement of Critical HVAC Systems, ATF B/820	AA4D0081	><	25	15	265										
Steam System Improvements MH44	AA4D0092	><	85	190											
NFPA 70E Arc Flash Hazard Risk Analysis	AA5D0004	$\times$		100	122	170	150								
Renovation of Lab W3, W5A & W5B, B/703	AA5D0020	$\times$		115											
Steam System Repairs MH24	AA5D0054	$\times$		300											
Rebuild Cooling Tower B/600 CCWF	AA5D0062	$\times$		450											
Emergency Power Replacement B/490	AA4D0051	$\times$		330											
Eastern Potable Water Well Field Rehab	AA6D0006	$\times$		160											
Repair of WM Reclamation Area Stacks, B/865	AA5D0023	$\times$		70											
Air Handler Replacements LV-2, B/490	AA5D0052	><		35	255										
Replace Outlet Strips Under Aluminum Frame Windows	AA5D0045	$\times$		35											
Roof Replacement B/555 N/E Corener and Rear Elevator Room	AA4D0090	$\times$		207											
Roof Replacement B/490 Block 5	AA5D0046	$\times$		20	290										
Roof Replacement B/490 Block 2	AA5D0047	$\times$		10	100										
Roof Replacement B/490 Block 3	AA5D0048	$\times$		11	99										
Damper Corrosion Remediation, B/555 K-6	AA5D0066	$\times$		26	116										
Roof Replacement B/911 Balance of 3rd Floor	AA5D0049	$\times$				290									
Rehab Lab 5, B/830	AA4D0075	$\times$				400									
Damper Corrosion Remediation, B/555 BOP	AA5D0042	$\times$				732									
Replace Three Liebert A/C Units, B/459	AA5D0019	> <				125									
Chiller Replacement B/928	AA5D0057	$\overline{}$				380									
Air Handler Replacements AC-3, B/510	AA5D0050	>>				300									
Air Handler Replacements K-5, B/555	AA5D0051	$\nearrow$				300									
Air Handler Replacements K-7, B/555	AA2D0075	$\nearrow$				250									
Replacement of PCB Capacitors in B/930	AA1D0080	> <				507									
Chiller Replacement B/930	AA5D0058	>>				435									
Structural Modifications of Wood Buildings PH II	A99D0020	>>				144									
Replace Fire Alarm Panel B/130/134	AA4D0096	>>				145									
Replacement of B/630 Tank	AA5D0026	$\supset$				60									

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Science Blocks $\mathbf{5} - \mathbf{6}$

Integrated Facilities and		Gross	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Infrastructure Budget Data Sheet (IFI)	Project Number	Building Area	Approp. (\$000)												
miruser uctur e Buuger Butu Sneet (11.1)															
SITE NAMEBrookhaven National Lab															
PROGRAM: Science															
Replace Supplemental A/C B/555	AA5D0041	$\geq \leq$					70								
Renovation for Office Space B/421	AA1D0066	$\geq \leq$					25								
PCB Electric Ballast Replacement - PH I	AA1D0107	$\geq \leq$					195								
Renovate Lab Suite 117, B/463	AA4D0062	$\geq \leq$					700								
Replace Boiler, Brook Ctr, B/30	AA1D0108	$\geq \leq$					80								
Soil Stabilization at RHIC, Phase I	AA1D0088	><					450								
Electrical Distribution Panel Labeling	AA3D0029	><					200	200	200	200					
Repair Loading Dock B/488	A97D0062	><						160							
Replace Distilled Water System, B/463	AA3D0018	><						151							
Renovate Lab Suite 182, B/463	AA4D0059	> <						500							
Renovate Room B-3, B/490	AA4D0054	> <						150							
Paint 300,000 Gal Water Tank	N98D0049	><						389							
B/912 Replace Oil Switches to Air	N98D0072	><						250							
Renovate Lab Suite 284, B/463	AA4D0061	><							600						
Upgrade Control Sys Interface/Grph	A98D0021	> <							58						
Gutter Screens for Frame Bldgs	A98D0078	> <							50						
Smoke Detector Replacement NSLS	AA1D0056	> <							250						
CCWF - Air Compressor Driers	N98D0115	> <							50						
AGS Ring Roof Repairs	A99D0068	> <							275						
Replace 13.8kV Feeder 919-1	A98D0206	> <							360						
Domestic Water Building Isolation Valves, Various	A98D0051	> <								50					
B/464 Replace Water Cooled A/C	N98D0044	> <								70					
Fall Protection/Roof Anchors for PM, Phase IV	AA2D0066	> <								50					
B/371, Replace Windows & Siding - Brookhaven House	AA2D0072	> <								100					
B/1005 Elevator Replacement	N98D0081	><								100					
Replace O/H Electric Lines w/UG Cable Harvard	N98D0023	> <								175					
Replacement of Cooling Tower #4 at AGS	AA2D0060	> <								225					
Repair Sagging Foundation, B/630	A98D0121	> <								28					
Correct Fire Wall Penetrations - B/463	A93D0008	>>								35					
Fire Door Upgrades, Various Buildings	A93D0261	> <								90					
Thermoplastic Road Markings Sitewide	AA1D0128	> <								50					
B/317 Rehab	AA2D0061	> <								130					
Refurbish Chem. Glass Washing Lab	AA1 D0096	> <								25					
Boiler 1A Retube Front Half	A98D0092	> <								120					
B/535 Air-Conditioning for Room B-148	A98D0084	> <								25					
Replace Skirting & Foundation Vents, Various Buildings	N98D0025	> <								50					

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Science Blocks 5-6

Integrated Facilities and	D. C.	Gross	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Infrastructure Budget Data Sheet (IFI)	Project Number	Building Area	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)	Approp. (\$000)
initiastructure Buuget Butu Sheet (111)				U	V	(, , , ,		4, ,		(,,,,,,	(1117)	(, ,			(,,,,,,
SITE NAMEBrookhaven National Lab															
PROGRAM: Science															
Replace Existing Sidewalks	AA1D0125	> <								250					
Misc New Projects - Resulting from CAS Inspections		><				468	2,885	3,677	2,429	2,309	7,308	7,166	6,946	6,614	7,358
Subtotal indirect maintenance		><	21,511	23,609	24,248	26,844	27,664	29,186	28,808	29,473	33,584	34,357	35,085	35,734	36,478
		$\sim$													
5.2.2 Deferred Maintenance Reduction (Indirect Funded)		$\sim$													
Renovation of Lab W3, W5A & W5B, B/703	AA5D0020	$\sim$			1085										
Roof Replacement B/490 Block 11 Animal Wing	AA4D0089	$\searrow$			60										
Chiller/Cooling Tower Replacements	A99D0097	>			1,000	1,950	2,400	2,800	2,800	2,800	3,000	2,500	1,000	500	500
Air Handler Replacements	AA1D0082	>			590	900	1,000	1,000	1,000	1,000	3,000	2,000	1,000	300	300
Replace Elevators	AA1D0137	>			300	750	750	100	100	100	300	300	300	300	300
Replace Various Fire Alarm Panels	AA1D0003	$\langle \rangle$			200	300	300	300	300	300	300	300	300	300	300
,	A98D0014	>			1,500	2,800	3,300	3,800	3,800	3,800	4,000	4,100	3,000	3,000	3,000
Roofing Replacements		$\Leftrightarrow$											3,000	3,000	3,000
Retrofit 480V Breakers With Solid State Trip Devices Backlog	P95D0004	$\longleftrightarrow$			100	100	100	100	100	100	100	50			
Renovation of Laboratory Space	AA5D0009	$\Diamond$			1105	4,000	4,900	5,500	5,500	5,500	5,700	6,000	7,100	7,400	7,400
Misc Deferred Projects		$\langle \rangle$					3,000	7,100	7,100	7,100	7,300	7,450	9,000	9,200	9,200
Subtotal Deferred Maintenance Reduction (Indirect)		$\langle \rangle$	-	-	5,940	10,800	15,750	20,700	20,700	20,700	20,700	20,700	20,700	20,700	20,700
		$\sim$													
Subtotal Indirect Maintenance (5.2.1+5.2.2)		$\sim$	21,511	23,609	30,188	37,644	43,414	49,886	49,508	50,173	54,284	55,057	55,785	56,434	57,178
		$\geq$													
Total MII Target (5.1.1 + 5.2.1)		> <	23,802	25,900	26,585	29,228	30,095	31,666	32,394	33,139	37,301	38,159	38,972	39,709	40,540
		> <													
Total Maintenance & Repair (5.1.1+5.1.2+5.2.1+5.2.1)	><	> <	23,802	26,650	32,525	40,028	45,845	52,366	53,094	53,839	58,001	58,859	59,672	60,409	61,240
6.0 Indirect O&E Excess Elimination (demolition,															
sale, lease, transfer) Show area eliminated in Gross															
Area column															
None			0	0	0	0	0	0	0	0	0	0	0	0	(
Total Indirect Excess Elimination			0	0	0	0	0	0	0	0	0	0	0	0	(
Note 1			om previous y												
Note 2 Note 3			R and HFBR tion projects					DM bookles	ucina indi-a	t funde					
11000 5	1v1ammenace	/ DIVI ICUUC	non projects	are one in the	same ocing	projects runc	ica mom die	DIVI DUCKIOS	using mullet	t runus					

FY 2008 Field Budget Call Updated to TYSP Guidance

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Science Block 7

6/1/2006

Integrated Facilities and Infrastructure Budget Data Sheet		Gross													
(IFI)	Project Number	Building Area	FY 05	FY 06	FY 07	FY 08	FY09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
()															
SITE NAMEBrookhaven National Lab															
PROGRAM: Science															
7.0 Area of Excess Eliminated															
List of projects, by type of funding, with project number, and excess AREA eliminated by fiscal year accomplished.															
Line Item															
Research Support Building - Ph I	AA0D0030	10,400			10,400										
GPP															
None															
IGPP															
None															
Operations/Expense															
Excess Facilities Demolition -05(B/197A,208,933B,934)	N98D0099	10,157	10,157												
Excess Facilities Demolition -06(527,86,628,482,649,422A,650/650A Phl)	N98D0099	19,452		19,452											
Excess Facilities Demolition -07 (B/650/650A Ph II)	N98D0099	1,246			1,246										
Excess Facilities Demolition - 08 (B/130, B/134 Ph I) Note 1	N98D0099	19,649				15,962									
Excess Facilities Demolition - 09 (B/134 Ph II)	N98D0099	30,593					30,593								
Excess Facilities Demolition - 10 (B/650/650A PhIII)	N98D0099	0						0							
Excess Facilities Demolition - 11 (B/650/650A Ph IV)	N98D0099	0							0						
Excess Facilities Demolition - 12 (B/650/650APh V)	N98D0099	0								0					
Excess Facilities Demolition - 13 (B/650/650A Ph VI)	N98D0099	0									0				
Excess Facilities Demolition - 14 (B/650/650A Ph VII)	N98D0099	0										0			
Excess Facilities Demolition - 15 (B/650/650A Ph VIII)	N98D0099	13,654											13,654		
Excess Facilities Demolition - 16 (B/492,B/459)	N98D0099	15,546												15,546	
Excess Facilities Demolition - 17 (B/811)	N98D0099	1,906													1,906
Subtotal of Excess Facility Area Eliminated	X	122,603	10,157	19,452	11,646	15,962	30,593	-	1	-	-		13,654	15,546	1,906
Research Support Building - Ph I MEL-001-027 & PED 03-SC-01-002 (03	AA0D0030	65,000				65,000									
BNL Center for Functional Nanomaterials 05-R-321	AA1D0005	94,500				94,500						·			
Expansion of B/560	A99D0038	1,000						1,000							
Addition to B/911	AA0D0008	3,000						3,000							
Security Access Control Facility - Main Gate	P98D0094	2,000								2,000	2,000	2,000	2,000	2,000	2,000
National Synchrotron Light Source II	AA6D0021	350,000								350,000	350,000	350,000	350,000	350,000	350,000
Total Area to be Added by GPP, IGPP, and LI Construction (List Area Under Occupancy Year)	$\geq$	515,500	0	0	0	159,500	0	4,000	0	352000	352000	352000	352000	352000	352000
Note 1 - Modular bldg ( 3,687 sf) part of B/130 to be relocated to B/185 as p	part of space co	onsolidation pla	ın.												

Integrated Facilities and Infrastructure		Gross	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
_	Project Number	Building Area	Approp. (\$000)												
Budget Data Sheet (IFI)	Number	Area	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
SITE NAME: Brookhaven National Lab															
PROGRAM: Environmental Management															
1.0 Capital Line Item															
1.1 New Construction (facilities and additions)		1			ı										
None															
1.2 All Other Projects (recap)		$\sim$													
None		$\sim$													
Subtotal Line Item Projects	$\sim$		0	0	0	0	0	0	0	0	0	0	0	0	0
2.0 General Plant Project (GPP)															
2.1 New Construction (facilities and additions)															
None															
2.2 All Other Projects (recap)		$\sim$													
None		$\sim$													
Subtotal GPP:	$\sim$		0	0	0	0	0	0	0	0	0	0	0	0	0
3.0 Institutional General Plant Project (IGPP)		ı					1								
None															
Subtotal IGPP Projects		0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.0 Operating/Expense for Excess Elimination and Other															
4.1 Excess Elimination (demolition, sale, lease, transfer)															
Show area eliminated in Gross Area column															
Demo of building 715, 753, 707A, 707B	EZ5012300	1,813		543	1,201										
Demo of building 802/704	EZ5012300	11,146			344	4,605									
4.1 Subtotal	> <		0	543	1,545	4,605	0	0	0	0	0	0	0	0	0
4.2 All Other Direct(List direct O&E maintenance under 5.1)	> <	> <													
None		$\supset \sim$													
4.2 Subtotal		>>	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Operating/Expense Projects	$\sim$	>>													
TOTAL Capital & Operating Investment:			0	543	1545	4605	0	0	0	0	0	0	0	0	) 0
TOTAL Overhead Investments (IGPP)			0	0	0	. 500	0		0	0	0	0	0	0	
TOTAL Overhead investments (IGFF)	$\sim$	$\overline{}$	. 0	U	L U		1 0	1 0	U	U	. 0		. 0		1 0

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Environmental Management Blocks $\mathbf{5} - \mathbf{6}$

Integrated Facilities and Infrastructure Budget Data Sheet (IFI)	Project Number	Gross Building Area	FY 05 Approp. (\$000)	FY 06 Approp. (\$000)	FY 07 Approp. (\$000)	FY 08 Approp. (\$000)	FY 09 Approp. (\$000)	FY 10 Approp. (\$000)	FY 11 Approp. (\$000)	FY 12 Approp. (\$000)	FY 13 Approp. (\$000)	FY 14 Approp. (\$000)	FY 15 Approp. (\$000)	FY 16 Approp. (\$000)	FY 16 Approp. (\$000)
SITE NAMEBrookhaven National Lab															
PROGRAM: Environmental Management															
5.0 Maintenance & Repair															
5.1 Direct Funded (by HQ or Site Program)	$\times$	$\times$													
EX - Environmental Management - Non Defense		><	-	-	-										
List direct O/E maintenance projects		$\gg$													
	EZ5012400	$\approx$	450	400	380	330									
HFBR ER Groundwater Projects	EZ5012410	$\iff$	385 545			254									$\vdash$
Total Direct Maintenance & Repair (Note 1)		$\Leftrightarrow$	1,380	563 1,202	452 1,078	462 1,046	477 1,080	_	_	_	_		_	_	
5.2 Indirect (from Overhead or Space Charges)		$\supset$	-	-	0	0	0	0	0	0	0	0	0	0	0
Total Indirect Maintenance & Repair		$\times$	-	-	-	-	-	-	-	-	-	-	-	-	-
6.0 Indirect O&E Excess Elimination (demolition, sale, lease, transfer) Show area eliminated in Gross Area column															
None		0	0	0	0	0	0	0	0	0	0	0	0	0	0
															i
Total Indirect Excess Elimination	$\geq$	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Note 1	EM Groun	dwater, BG	RR and H	FBR proje	cts transfe	r from EM	to SC in I	FY10							

#### Integrated Facilities and Infrastructure (IFI) Crosscut – Environmental Management Block 7

Integrated Facilities and		Gross	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Infrastructure Budget Data Sheet (IFI)	Project Number	Building Area	Approp. (\$000)												
Imit user detaile Budget Buttu sheet (II 1)						,			,,	,					
SITE NAMEBrookhaven National Lab															
PROGRAM: Environmental Management															
7.0 Area of Excess Eliminated															
List of projects, by type of funding, with project number,															
and excess <u>AREA</u> eliminated by fiscal year accomplished.					Π			ı							
Line Item	1														
None															1
GPP															1
None															
IGPP	,														<b></b>
None															
Operations/Expense															ļ
None															
Indirect Operations/ Expense															
Demo of building 715, 753, 707A, 707B	EZ5012300	1,813			1,813										
Demo of building 802/704	EZ5012300	11,146				11,146									
Transfer by sale or lease, or transfer to an outside federal agency															
None															
Subtotal of Excess Facility Area Eliminated	><	12,959	0	-	1,813	11,146	0	0	0	0	0	0	0	0	0
None															
Total Area to be Added by GPP, IGPP, and LI Construction (List Area Under Occupancy Year)		0		0	0	0	0		0	0	0	0	0	0	
		Ŭ		Ü											

### APPENDIX 5 PRIORITIZED LIST OF SLI LINE ITEMS

This section contains the prioritized list of Science Laboratory Infrastructure (SLI) Line Item projects previously submitted to the DOE-SC 31.2, Infrastructure Division, during March 2006.

						EC Range (\$				Proposed I										
Site Project	Project Title	Raw	Adj CAMP	Gross	Low End (- 15%)	High End (+15%)	Mid Point	PED	OPC	Year 1	Year 2	Year 3	Project Description							
Identifier		Score		35	15%)	(+15%)														
AA1D0017	Renovate Science Labs - Ph 1	62	65			\$ 20,700			\$70	\$4,600	\$8,200	\$5,200	The project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. The project will revitalize and modernize various laboratories, and associated offices and common space in BNL's major laboratory/office buildings. The scope of refurbishment will include HNAC, electrical, lighting, plumbing, casework and counters, laboratory service, support and work reass, and architectural surface upgrades. The modernized/revitalized laboratories will be utilized by collaborative research teams from multiple science programs. They will utilize modern modular laboratory equipment wherever possible to provide maximum lab flexibility increasing the potential for reuse.							
AA1D0032	Brookhaven Computing Facility Expansion B/515	60	63	30,000	\$ 16,031	\$ 21,689	\$ 18,860	\$ 3,097	\$820	\$3,097	\$8,000	\$7,763	This addition to B/515 will provide 18" raised floor computer space to support several expanding computer needs of several scientific programs, general BNL scientific computing and BNL administrative computing. Included will be associated office and support space will be constructed for tape storage, and consolidation of staff near the computer facility to improve operations and organizational efficiency.							
N98D0069	Central Chilled Water Facility, Ph II	60	63	6,750	\$ 11,985	\$ 16,215	\$ 14,100	\$ 2,144	\$240	\$2,144	\$8,000	\$3,956	This project will increase the plant capacity to support the addition of new buildings to the chilled water system. While individual chillers could be added incrementally, it is far more efficient to do this as a single project. Other plant systems such as cooling towers need to be constructed which will accommodate several chillers.							
AA1D0007	Research Support Building - Ph II	62	65	75,000	\$ 21,250	\$ 28,750	\$ 25,000	\$ 5,000	\$2,695	\$5,000	\$16,250	\$3,750	This project will construct a new two-story office building. As suggested in the BNL Master Plan this represents the second phase of a two-phase approach, constructing buildings in close proximity, will be a cost-effective and efficient solution to relocating our support staff out of aging WW If facilities. The new building will provide an enhanced image of BNL as a center for world-class science. Organizations to be located in the new facility could include Fiscal, Internal Audit, Directors Office, Internal Audit, Quality Management, Safety and Health Services, Environmental Services, and other smaller support functions. It is anticipated that space equal to the space constructed will be identified for demolition.							
A98D0014	Roof Replacement	60	63	N/A	\$ 8,500	\$ 11,500	\$ 10,000	\$ 2,000	\$50	\$2,000	\$6,500	\$1,500	BNL's roofing inspections have indicated that a significant area of roofing was in poor to failed condition, and needs replacing. If roof replacements issues left to worsen can readily lead to water related ES&H concerns, cause impacts to scientific equipment and impact operations. This project will replace approximately 450,000 sf of roofing.							
N98D0046	Central Steam Rehab - Ph I	57	59	N/A	\$ 6,800	\$ 9,200	\$ 8,000	\$ 1,600	\$50	\$1,600	\$5,200	\$1,200	This project will replace the aged steam distribution lines and associated condensate-return lines. Many of the oldest section of the steam distribution system have poor insulation and there are some leaks in the condensate return piping, causing a loss of system efficiency.							
A92D0127	Fire Protection, Ph IV	55	57	N/A	\$ 17,000	\$ 23,000	\$ 20,000	\$ 4,000	\$70	\$4,000	\$13,000	\$3,000	This project provides for the replacing antique fire protection systems in 39 buildings on site, replacing detoration water mains, and replacing 18 Halon fire suppressions systems, protecting high valued elektronic facilities, are being replaced with "clean agent" systems due to environmental requirements from DOE and the inability to recharge these protection systems once used. Early warning fire detection will also be installed to protect these highly sensitive areas, as is standard practice for vital areas susceptable to smoke damage. Twenety one buildings will have new sprinkler systems installed to protect the occupants and protect the programmatic needs. Modification to fire alarm equipment will be need to properly connect alarms from these systems into the Site Alarm System. The installation of these systems are driven by ESH regulations, OSHA and/or New York State Buildings Codes. Replacement of the water mains targets 22,000 ft. of 25, 30 and 40 year old iron pipe that is showing high rates of corrision and can no longer meet the fire safety needs.							
AA1D0018	Renovate Science Labs - Ph II	62	65	N/A	\$ 17,000	\$ 23,000	\$ 20,000	\$ 4,000	\$70	\$4,000	\$13,000	\$3,000	The project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. The project will revitalize and modernize various laboratories, and associated offices and common space in BNL's major laboratory/office buildings. The scope of refurbishment will include HVAC, electrical, lighting, plumbing, casework and counters, laboratory service, support and work areas, and architectural surface upgrades. The modernized/revitalized laboratories will be utilized by collaborative research teams from multiple science programs. They will utilize modern modular laboratory equipment wherever possible to provide maximum lab flexibility increasing the potential for reuse.							
N98D0015	Energy Sciences Building	62	63	50,000	\$ 19,550	\$ 26,450	\$ 23,000	\$ 4,600	\$1,825	\$4,600	\$14,950	\$3,450	The Energy Sciences Building Project is a key element in BNL's plan to upgrade and modernize facilities essential to the DOE mission in applied sciences. This project will construct 57,000 square feet of sorely needed laboratory and office facilities to replace old, outdated, inefficient World War II era facilities that are incapable of meeting mission needs. Execution of this project is essential to multi-program DOE initiatives in environmental sciences, carbon management, nanotechnology, energy sciences, and for promoting industrial collaboration and technology transfer. Existing buildings for applied sciences are dispersed over a wide area of the BNL site. This discourages collaboration, and negatively impacts productivity and creativity. In addition, the existing wood frame structures are costly to operate and maintain. Wood rot, leaking rods, saggling floors, structural systems not up to current code, asbestos and lead hazards, old HVAC and electrical systems, old windows, old lighting and poor insulation will all require large continued investment to maintain just a minimum functional capability.							
AA1D0010	Support Shop Complex - Ph I	57	58	55,000	\$ 17,000	\$ 23,000	\$ 20,000	\$ 4,000	\$1,995	\$4,000	\$13,000	\$3,000	This represent the first phase of a two-phased project to consolidate the various Plant Engineering divisions including the administrative group, buildings group (carpentry, painting, and cabinet shop) site group (grounds, custodial and heavy equipment) and utilities group (steam, electric water and sewage) into a single complex. Currently these functions are scattered around the site in mostly 60-year old buildings. The new space will be configured to allow the sharing of resorces improving operational efficiency and reducing 65,000 st of space, a 15% reduction.							
AA1D0019	Renovate Science Labs - Ph III	57	59		\$ 17,000	\$ 23,000	\$ 20,000	\$ 4,000	\$75	\$4,000	\$13,000	\$3,000	The project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. The project will revitalize and modernize various laboratories, and associated offices and common space in BNL's major laboratory/office buildings. The scope of refurbishment will include HVAC, electrical, lighting, plumbing, casework and counters, laboratory service, support and work areas, and architectural surface upgrades. The modernized/revitalized laboratories will be utilized by collaborative research teams from multiple science programs. They will utilize modern modular laboratory equipment wherever possible to provide maximum lab flexibility increasing the potential for reuse.							
AA1D0014	Materials Handling Building	57	60	35,000	\$ 5,950	\$ 8,050	\$ 7,000	\$ 1,400	\$1,275	\$1,400	\$4,550	\$1,050	This project provides for a new building in which all stores, issue stock items, chemicals, shipping and receiving, certain bulk storage and administration will be consolidated into one modern facility. The MHC project will demolish 35,000 sf of antiquated, inefficient structures and replace them with an efficient facility about half their size. The MHC will complete BNL's efforts to consolidate and relocate its warehousing, stockroom, and supporting administrative areas functions into a cost-effective operation.							
AA1D0028	Electrical System Modifications - PH III	57	58	N/A	\$ 8,500	\$ 11,500	\$ 10,000	\$ 2,000	\$50	\$2,000	\$6,500	\$1,500	This project will continue the efforts of previous phases to replace outdated 13.8kV electrical distribution system cable and modify substations to convert the existing radial system into a more reliable loop-type system.							

					T	EC Range (\$	ik)			Proposed I	Funding Pro	ofile (000's)	
Site Project Identifier	Project Title	Raw CAMP Score	Adj CAMP Score	Gross SF	Low End (- 15%)	High End (+15%)	Mid Point	PED	OPC	Year 1	Year 2	Year 3	Project Description
AA1D0020	Renovate Science Labs - Ph IV	57	57	N/A	\$ 21,250	\$ 28,750	\$ 25,000	\$ 5,000	\$75	\$5,000	\$16,250	\$3,750	The project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. The project will revitalize and modernize various laboratories, and associated offices and common space in BNL's major laboratory/office buildings. The scope of refurbishment will include HVAC, electrical, lighting, plumbing, casework and counters, laboratory service, support and work areas, and architectural surface upgrades. The modernized/revitalized laboratories will be utilized by collaborative research teams from multiple science programs. They will utilize modern modular laboratory equipment wherever possible to provide maximum lab flexibility increasing the potential for reuse.
AA1D0024	Long-Term User Housing Ph I	57	59	80,000	\$ 14,450	\$ 19,550	\$ 17,000	\$3,400	\$2,875	\$3,400	\$11,050	\$2,550	This project will construct 80,000 square feet of new housing as a first phase to meet the hosing demand. This type of housing will be geared for the portion of the over 3,000 visiting scientists per year who come to BNL for extended stays. Many of these users bring their families and require multi-bedroom housing. Transportation ends to be less of an issue for this category of user. Considering these two factors the location of the housing could be more remote from the central site to allow a community-type atmosphere to accommodate family life and comfort. This type of housing will likely be self-contained, with only shared community type facilities for entertainment and social gatherings. Energy efficient replacement housing will allow us to demolish obsolete structures, while providing appropriate quarters for guests.
AA1D0021	Renovate Science Labs - Ph V	57	57	N/A	\$ 21,250	\$ 28,750	\$ 25,000	\$ 5,000	\$75	\$5,000	\$16,250	\$3,750	The project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. The project will revitalize and modernize various laboratories, and associated offices and common space in BNL's major laboratoryoffice buildings. The scope of refurbishment will include HVAC, electrical, lighting, plumbing, casework and counters, laboratory service, support and work areas, and architectural surface upgrades. The modernized/revitalized laboratories will be utilized by collaborative research teams from multiple science programs. They will utilize modern modular laboratory equipment wherever possible to provide maximum lab flexibility increasing the potential for reuse.
AA1D0026	Potable Water system Upgrades - Ph II	57	57	N/A	\$ 6,800	\$ 9,200	\$ 8,000	\$1,600	\$50	\$1,600	\$5,200	\$1,200	This project will replace the aged potable water system distribution lines. The area of most need is the housing area.
AA1D0022	Renovate Science Labs - Ph VI	57	57	N/A	\$ 21,250	\$ 28,750	\$ 25,000	\$ 5,000	\$75	\$5,000	\$16,250	\$3,750	The project will upgrade and rehabilitate existing, obsolete, and unsuitable BNL laboratory facilities into modern, efficient laboratory spaces compatible with world-class scientific research. The project will revitalize and modernize various laboratories, and associated offices and common space in BNL's major laboratory/office buildings. The scope of refurbishment will include HVAC, electrical, lighting, plumbing, casework and counters, laboratory service, support and work areas, and architectural surface upgrades. The modernized/revitalized laboratories will be utilized by collaborative research teams from multiple science programs. They will utilize modern modular laboratory equipment wherever possible to provide maximum lab flexibility increasing the potential for reuse.
AA1D0029	Sanitary System Modifications - Ph	55	57	N/A	\$ 8,500	\$ 11,500	\$ 10,000	\$ 2,000	\$50	\$2,000	\$6,500	\$1,500	This project will continue the work of previous efforts to replace leaky aged sanitary piping and thus ensure all discharges pass through the treatment plant where they can be treated and monitored.
AA4D0080	Information Services Building	57	59	27,000	\$ 9,350	\$ 12,650	\$ 11,000	\$2,200	\$1,005	\$2,200	\$7,150	\$1,650	Construction of new 27,000 sf building to replace the following old buildings and allow consoldation of functions: Reasearch Lirbray (B/477 15,000 sf), records holding (B/494 9,000 sf, institutional archive (in part of B/129), cultural resourse storage and display (in part of B/129).
AA1D0023	Short-Term User Housing, Ph I	57	59	35,000	\$ 8,500	\$ 11,500	\$ 10,000	\$ 2,000	\$1,295	\$2,000	\$6,500	\$1,500	This project will construct new housing in several phases, with additional housing to meet demand constructed first, and replacement facilities constructed last. This type of housing will be geared for the portion of the over 3,000 visiting scientists per year who stay at BNL for a short time. Many of these users are here for only a few days supporting their experimental collaborations by working shifts on beamlines. Proximity to the research reand economical costs are the main factors involved. This type of housing likely will have shared support facilities; such as bathroom and kitchens, and common spaces for entertainment, and social activities. Most of BNL's visitor housing is in recycled WIVII armly barracks. Around 40% of the demand for BNL housing demand s for short term for visitors staying only a few days. Many of these visitors prefer their rooms to be adjacent to their research space. Energy-efficient replacement housing will allow us to demolish obsolete structures while providing appropriate quarters for guests. Existing short-term housing would be demolished as part of the later phases of this project as the space is replaced.
AA1D0010	Support Shop Complex - Ph II	57	57	55,000	\$ 17,000	\$ 23,000	\$ 20,000	\$4,000	\$1,995	\$4,000	\$13,000	\$3,000	This represent the first phase of a two-phased project to consolidate the various Plant Engineering divisions including the administrative group, buildings group (carpentry, painting, and cabinet shop) site group (grounds, custodial and heavy equipment) and utilities group (steam, electric water and sewage) into a single complex. Currently these functions are scattered around the site in mostly 60-year old buildings. The new space will be configured to allow the sharing of resorces improving operational efficiency and reducing 65,000 sf of space, a 15% reduction.
AA1D0013	National Security Building	57	57		,	\$ 9,200		, ,	\$855	\$1,600	\$5,200	\$1,200	While the vast majority of BNL scientific work is unclassified, a small program supporting nuclear non-proliferation generates classified data and information that must remain secure for national security purposes. Currently, this function is housed in a World War II wooden structures which would be demolished. The proposed facility will consolidate all classified functions and information into an efficient, modern building with adequate security, fire safety and data storage capabilities.
AA1D0027	Central Steam Rehab - Ph II	57	57	N/A	\$ 6,800	\$ 9,200	\$ 8,000	\$ 1,600	\$50	\$1,600	\$5,200	\$1,200	This project will replace the aged steam distribution lines and associated condensate-return lines. Many of the oldest section of the steam distribution system have poor insulation and there are some leaks in the condensate return piping, causing a loss of system efficiency.

# APPENDIX 6 EXCESS ASSETS

ID	NAME	GROSS	EXCESS YEAR	OPS	CONTAM	DEMO \$(k)	DEMO DATE	FUNDING	NOTES
SC BUILDINGS									
0086	Stationery Warehouse	11,097	2005	N	N	270	2006	SLIEF	Excess Facilities 2006
0096	Truck/Utility Storage	5,344	2006	Y	N	190	TBD	SLILI	Proposed for demo by RSB SLI line Item
0130	EENS Risk Technology	19,649	2007	Υ	N	650	TBD	NF	Excess contingent of BNL space consolidation plan
0134	PE/Pub.Affairs/Fiscal/Inter.Au	30,593	2007	Y	N	900	TBD	NF	Excess contingent of BNL space consolidation plan
0302	Apartment 28	4,731	2009	Y	N	150	TBD	NF	Excess contingent of Alt. Financed - Housing
0303	Apartment 34	5,310	2009	Y	N	160	TBD	NF	Excess contingent of Alt. Financed - Housing
0306	Apartment 13	4,073	2009	Υ	N	125	TBD	NF	Excess contingent of Alt. Financed - Housing
0325	Apartment 7	4,191	2009	Υ	N	125	TBD	NF	Excess contingent of Alt. Financed - Housing
0327	Apartment 24	3,781	2009	Υ	N	115	TBD	NF	Excess contingent of Alt. Financed - Housing
0328	Apartment 26	2,481	2009	Υ	N	75	TBD	NF	Excess contingent of Alt. Financed - Housing
0330	Apartment 8	3,931	2009	Υ	N	120	TBD	NF	Excess contingent of Alt. Financed - Housing
0331	Apartment 10	4,088	2009	Υ	N	125	TBD	NF	Excess contingent of Alt. Financed - Housing
0334	Apartment 30	2,565	2009	Υ	N	75	TBD	NF	Excess contingent of Alt. Financed - Housing
0422A	Old Paint Shop	1,264	1996	N	N	60	2006	SLIEF	Excess Facilities 2006
0459	Business Systems Division	14,303	2009	Υ	N	500	TBD	NF	Excess contingent of BNL space consolidation plan
0482	Hazardous Storage	3,204	2006	N	N	115	2006	SLIEF	Excess Facilities 2006
0491	Medical Research Reactor	11,653	2002	N	Y	18,070	TBD	NF	Excess Facilities Outyear
0492	Well No. 105	1,243	2002	N	N	75	TBD	NF	Excess Facilities Outyear
0527	Excess Office Space	2,869	2004	N	Υ	113	2006	SLIEF	Excess Facilities 2006
0628	Liquid Hydrogen Facility	403	2005	N	N	30	2006	SLIEF	Excess Facilities 2006
0629	Emergency Power Facility	1,281	2007	Υ	N	85	TBD	NF	Excess contingent of 2006 GPP - Gen replacement
0649	Site Maintenance	615	2006	N	N	30	2006	SLIEF	Excess Facilities 2006
0650/650A	Custodial Storage	13,654	2000	N	Υ	7,697	2013	NF	Multi-year project
0811	Waste Concentration Facility	1,906	2004	N	Y	2,910	TBD	NF	Excess Facilities Outyear
SC OSF									
1070-BMRR	Medical Reactor	N/A	2002	N	Υ	Included	TBD	NF	Demo cost included with 0491
409030172	Cryogenic Liq Storage Fac (B/963)	N/A	2005	N	N	NE	TBD	NF	
WELLS_MON_OTHER	Other Wells	N/A	2001	N	N	NE	TBD	NF	
2030	Metal Incinerator	N/A	1997	N	N	NE	TBD	NF	

			EXCESS			DEMO	DEMO		
ID	NAME	GROSS	YEAR	OPS	CONTAM	\$(k)	DATE	FUNDING	NOTES
EM BUILDINGS	<u>'</u>								
0701	BGRR Project Offices	38,641	1997	N	Υ	NE	TBD	EM	EM plans to remove reactor, but leave structure
0704	Fan House	9,864	2000	N	Υ	4,949	2008	EM	
0707A	Pumphouse	1,215	2000	N	N	1,744	2007	EM	
0707B	Water Treatment House	262	2000	N	N	Included	2007	EM	Included with 0707A
0715	Stack Monitoring Station	208	2000	N	Υ	Included	2007	EM	Included with 0707A
0750	High Flux Beam Reactor	117,790	2000	N	Υ	NE	TBD	EM	EM plans to remove reactor, but leave structure
0753	Transmitter Station	128	2006	N	N	Included	2007	EM	Included with 0707A
0802	Fan House	1,282	2008	Y	Y	Included	2008	EM	Included with 0704
EM OSF									
ST0707	HFBR Cooling Tower Basin	N/A	2000	N	N	Included	2007	EM	
6250750	High Flux Beam Reactor Tank	N/A	2000	N	Υ	Included	TBD	EM	Included with 0750
1090-HFBR	HFBR	N/A	2000	N	Y	Included	TBD	EM	Included with 0750
General notes / at	hhreviations								
TBD	To be determined								
NE	Not estimated								
NF	No funding identified								
SLIEF	SLI program - Excess facilities								
SLILI	SLI program - Line item								

# APPENDIX 7 ASSETS REQUIRING CLEANUP FOR REUSE

ID	NAME	TOTAL AREA	CLEANUP AREA	YEAR AVAIL	OPS	CONTAM		CLEANUP DATE	FUNDING	CLEANUP/REUSE
SC BUILDINGS	•									
0462	Central Shop - Sheet Metal Shop	21,109	2,495	2000	N	Υ	225	TBD	NF	Reclaim former hot shop area
0830	Environmental Waste Technical Center	28,946	5,550	2000	N	Y	11,000	TBD	NF	Remove hot cells and associated from high bay
0901	Radioisotope and Radiotracer C	34,301	6,740	2000	N	Y	7,970	TBD	NF	Remove dynamatron machjine
General notes	/abbreviations									
TBD	To be determined									
NF	No funding identified									

### APPENDIX 8 LIST OF GENERAL PLANT PROJECTS – FY08

This section contains the list of General Plant Projects (GPP) previously submitted to the DOE Office of Nuclear Physics during March 2006.

													FY 2008	}
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Buildings	320	62	65	4.4	AA5D0064	Expand BCF Infrastructure, B/515: This project will install increased power and cooling capabilities into the Brookhaven Computing Facility to accommodate increased demand associated with RHIC and ATLAS computing needs.	GPP	1600		1600				
Buildings	202	52	55	4.5	AA3D0054	Upgrade B/463 Hydraulic Elevator: This project will replace the entire elevator assembly with a dual jack type system, eliminating the below grade cylinders altogether, modernizing the equipment, and achieving compliance with all modern codes. This elevator routinely requires several unscheduled maintenance calls each year and has become unreliable.	GPP	175		26	149			
Buildings	202	52	55	4.5	AA5D0002	Upgrade B/510 Freight Elevator: This project will replace the existing elevator cab, associated operating mechanisms, and the hydraulic operations system. Existing cab and mechanical support would be removed. This would be an upgrade based upon current technology and would bring the elevator into compliance with current codes. This elevator solicits several out-of-service calls each year.	GPP	300	40	20	240			
Buildings	61	52	55	1.4	AA2D0082	B/725 Upgrade South Westinghouse Elevator: This project will replace the existing elevator cab, associated operating mechanisms, and the hydraulic operations system. Existing cab and mechanical support would be removed. This would be an upgrade of existing equipment based upon current technology that would bring the elevator into compliance with current codes. Elevator is taken out-of-service several times per year due to mechanical repair needs.	GPP	275	25	20	230			

													FY 2008	}
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Buildings	451	53	56	1.4	AA3D0035	Upgrade Roof B/912 EEA & EEBA: This project will continue construction of a complete new roof to industry standards in the East Experimental area of building 912 and the upgrade of the roof at the East Experimental Area Addition and the North-West building. Presently, 100's of gallons of water are leaking through the East Experimental building roof during an average rainfall; damage to electrical equipment, radiation interlocks, and experimental equipment has occurred. This water has leaked into high radiation areas causing the spread of	GPP	2000	985	0	500	515	515	515
Buildings	320	62	65	4.4	AA5D0018	contamination.  Expand BCF Infrastructure, Lab A B/510: This project will refurbish the old Sig7 room and expand BCF-Lab-A into the old Sig7 room to facilitate the expansion the Brookhaven Computing Facility to accommodate immediate needs. In the sig7 area, B510 room 1- 240/239/237, activities will remove the partition walls between building 510/515 (1-240 & BCF-Lab-A rooms & 1- 240/239/237), remove Laser infrastructure, refurbish raised floor tiles, install two new 30 ton A/C unit, upgrade fire detection to HSSD, upgrade room access card security system, install 150KW-UPS/PDU and engineer room EPO as per NFPA 70 (National Electrical Code) 645.10, NFPA 70E 403.5, NFPA 75 8-4.7. In the BCF Lab-A activities will replace the old /undersized, failing A/C Liebert unit (AC-6) in Lab A with a new 30 ton unit prior to the space being land- locked by computer racks and robots. The old existing unit is continuously failing and is also under sized for the high heat	GPP	900			900			

													FY 2008	ı
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Propose
Buildings	61	45	48	4.5	A99D0096	Conference Room Upgrade, B/460: Project will renovate the existing conference room at Building #460 with work to include new carpeting, wall paneling, built-in storage areas, ceiling system, re-designed lighting system, wall finishes and new furnishings. Renovation includes new entry off main corridor. This facility is often host to members of the public and elected officials and should reflect the Laboratory's capabilities.	GPP	125			125			
Utilities	79	50	53	1.4	AA5D0025	BCF Emergency Power and HVAC Disconnection System: This project will provide for the design and installation of a centralized shutdown station at the principle exit to disconnect the electrical power supplied to the information technology equipment and HVAC in the Brookhaven Computing Facility. The B/515 BCF does not have a centralized means to disconnect the power supplied to the computers and other electronic devices as required by the National Electrical Code, NFPA 75, and OSHA. All of the HVAC systems in the BCF also lack centralized controls for shutting down equipment by the principle exit to comply with these codes.	GPP	200			200			
Buildings	38	42	45	2.1	AA1D0061	Renovation of Biology Department Library: This activity will refurbish the Biology Departmental Library, which is currently unusable. Renovations will include air conditioning and circulation improvements, electrical system upgrades, and installation/replacement of floor and ceiling tiles. Biology library at present requires personnel to walk through a waste accumulation area in order to access the library.	GPP	150			150			

													FY 2008	
Category	RPM Equivalent Score	Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Buildings	224	58	61	4.1	N98D0041	Records Holding Area Upgrade: This project will complete upgrades to the Records Holding building, B/494, to bring the facility into compliance with 36 CFR Part XII, Records Management, Subpart K - Facility Standards for Records Storage Facilities. Specific improvements will include the installation of video cameras, motion detectors, card keys and central station hookup for security and installation of heating and air conditioning to meet temperature and humidity steady-state requirements.	GPP	150				150	150	150
Buildings	163	52	52	3.8	A94D0004	Install New North Gate Security Booth and Roadway: This activity will install a new North Gate guard booth 2500 feet south of the existing North Gate booth. This will enable more efficient screening of entering vehicles and decrease present hazardous situations by moving the traffic backlog away from the entrance point off William Floyd Parkway. It will be located in the center of the roadway, hardened against vehicles from both directions. The road will be widened to permit a single lane of traffic in either direction and provide room to parallel park four vehicles to the right of the inbound and outbound roadways. Traffic signals of red and flashing yellow to be installed on ether side of the outbound lane, controlled by the gate officer. The booth will have electrical power for lights, heat, and air conditioning. Exterior lights will provide area lighting to illuminate all areas 30 feet from the booth to 2 foot-candles = 2 lumens/ft squared or 21.5 lumens/m squared. Four interior and two exterior electrical outlets are needed. Telephone	GPP	120				120	120	120

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Buildings	150	60	60	4.2	A99D0057	Temperature/Humidity Control Mods, PC Lab B/535: This activity will modify the existing HVAC System in PC Lab, Rooms B-114, B114A, B-114B, B-116, B-118, and B118A to maintain year round control of temperature/humidity. The temperature should be controlled between 70 - 75 degrees F and humidity between 45% - 50% relative humidity. These numbers are difficult to achieve using a 100% outside air system. During winter month cold snaps, stats trip out regularly shutting down some a/c units causing imbalances and large temperature/humidity swings. During spring and fall, periods without chilled water, the system allows warm moist air to be brought in without the need for reheat, thus providing poor control of	GPP	130				130	130	130
Buildings	136	52	52	4.6	AA1D0086	humidity.  Additional Vehicle Parking for B/911: The Collider- Accelerator Department is consolidating various RHIC construction groups into building 911. This will result in an increased building occupancy of about 30 personnel, mainly on the West Side of the building. At present, the west parking lot is full, with personnel parking at building 703 and on Lawrence Drive. The Building 703 parking lot requires walking across two well-used roads to get to building 911. Lawrence Drive is wide enough for two traffic lanes only. This project will provide for an additional 30 parking spaces at the west parking lot of building 911 by expanding parking in both the north and south directions and provide for separate entrance and exit roads onto Laurence Drive.	GPP	85				85	85	85

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Buildings	117	52	52	4.4	AA1D0100	Machine Shop Expansion B/801: This project will increase floor space to the B/801 machine shop (room 2-45/-45A) by removing an existing partition wall and breaking through to an adjacent room (2-44). Room 2-44 would be cleared of a sink and counters. Room 2-43 (vacant) would be cleared of two abandoned fume hoods and a sink to accommodate operations currently performed in 2-44. Electrical services would be relocated in 2-45 and 2-44.	GPP	109				109	109	109
Buildings	116	55	55	4.4	AA5D0017	Electrical Service B/487: This project would provide electrical service to the Soil Analysis Facility, B/487 including electrical lighting, heat, and insulation. Ventilation will be provided for the summer and heating for the winter to provide a minimum of 50 F within the facility. This will enable continuous operations with production of reliable data.	GPP	120				120	120	120
Buildings	111	45	45	4.5	A98D0101	B/610 Exterior Refurbishment: This project would provide for the refurbishment of the exterior of Building 610 (Central Steam Facility). The windows, doors, and exterior aluminum siding are in disrepair. The Fuel Transfer Facility Project has improved the area and serves to highlight the poor condition of the CSF itself. Since the CSF is the focus of various visitors and regulators, the first impression is extremely poor. The masonry in the older section (1948) is spalling and needs to be repointed. Further deterioration could compromise the structural stability of the wall itself. The windows which are mostly inoperative and secured shut would be replaced.	GPP	450				450	450	450

													FY 2008	3
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Buildings	146	52	52	4.5	AA6D0019	B/462 Shop Upgrades: This project will remove the former Light Machine Shop in B/462 and prepare the facility to house Carpentry and Paint Shop personnel. This project is part of an overall initiative to consolidate and upgrade Plant Engineering facilities in order to improve responsiveness and efficiency of the work force.	GPP	4000		2555	112301	1 100	10.070	4,000
Buildings	116	55	55	4.4	P98D0094	Security Access Control Facility - Main Gate: This project would provide for a new building of approximately 2,500 square feet that will provide secure access control, badging facilities, general information and contractor/vendor training facilities at BNL's Main Gate. This facility will greatly enhance the ability of security forces to maintain a consistent vehicle access flow and alleviate the safety problems associated with traffic backups on the William Floyd Parkway.	GPP	750						750
						BUILDING TOTAL							1,679	
						BOILDING TOTAL			1,050	1,666	2,494	1,679	1,079	6,429
Utilities	320	62	65	4.4	AA5D0065	New 2 - 12" Chilled Water Lines, B/515: This project will provide for the construction of two additional 12" chilled water lines from the Central Chilled Water System to B/515 to provide the Brookhaven Computing Facility with additional chilled water capacity to meet anticipated future cooling needs.	GPP	200		200				

BNL's G	SPP FUND	ING												
													FY 2008	3
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	309	62	65	4.6	AA4D0097	Upgrade 480V Breakers with Solid State Trips FY05: This project will retrofit 480V electro/mechanical circuit breakers with Solid State trip devices. Failure of the older circuit breakers to trip could represent a hazard to personnel. This will be a site-wide effort staged in several phases over several years as small distinct projects.	GPP	300	80	80	140			
Utilities	290	62	65	4.4	AA4D0079	Emergency Power Improvement B/463: This project will provide for the evaluation of the emergency power needs of B/463 and allow for the purchase and installation of generators to replace aging emergency generator equipment currently supplying this building. Rewiring of critical loads may be required to ensure backup power availability to all critical systems.	GPP	425	50	375				

													FY 2008	
Category	RPM Equivalent Score	Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	289	64	67	4.6	AA2D0084	C-A Area Storm Water Improvements: This project will provide for improvements to the storm drain system terminating within the RHIC ring at SPDES Outfall 002. Heavy rains cause this system to back up and flood into the AGS experimental areas, the ring, and potentially Bidg. 911. Hydrologic modeling indicates that the system cannot handle a two-year frequency storm and is experiencing flooding on an annual frequency. BNL's design criteria requires capacity for a 25 or 50 year storm in critical areas. The project would consist of the following improvements: expand the recharge basins within the RHIC ring by adding a fourth basin: divert flow in three areas to other drainage systems; construct six recharge swales to locally collect water and reduce loads on the system; and upgrade piping and manholes between Bldg. 911 and 922 to increase flow capacity. The project is to be phased over six years (FY03 - 08) to coincide with other construction projects and environmental remediation activities that require fill material and/or make land available for the recharge swales.	GPP	1630	549	300	300	481	481	48*
Utilities	254	62	65	4.5	AA5D0013	Emergency Power Replacement B/912 PH I: This project will provide for the upgrade of the emergency power system suppling power to several older buildings in the RHIC injector complex. It would upgrade antiquated equipment including two emergency generators and three automatic electrical transfer switches. In addition, one 3,000 gallon UST will be removed. This would be the first phase of an effort to replace and upgrade four generators and 12 transfer switches.	GPP	500		100	400			

BNL's C	SPP FUND	ING												
											FY 2008			
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	240	54	57	3.7	AA5D0027	Fiber Cable Installation CFN and RSB Security: This project will provide for the installation of a minimum 36-bundle multimode fiber cable to support the security requirements for the Center for Functional Nanomaterials (CFN) and the Research Support Building (RSB) projects. The total number of spare fibers currently inplace between Buildings 449 and 50 is insufficient. Additional fiber cables must be installed between both facilities and Building 50 (Police station).	GPP	110		110				
Utilities	200	60	63	4.3	AA3D0049	Install Cooling Tower and Chiller B/555: This project provides for the installation of two new chillers and cooling tower in Bldg. 555 and reactivation of one 300 ton chiller in Bldg. 725. Project will provide chilled water for CFN operations in addition to Laboratory demands. The Central Chilled Water Facility (CCWF). is currently at 94% of capacity and this project will improve quality of cooling service across the Laboratory.	GPP	2525	1990	535				

BNL's G	PP FUND	ING												
													FY 2008	1
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	134	57	60	1.5	AA5D0033	New 10" Water Main at Rutherford and Cornell: This project will provide for the installation of a new 10-inch water main along Lawrence Drive to improve fire fighting water supplies to Bldgs. 701, 911, 912, 918, 922 and 925. The existing water main loop along Lawrence Drive which serves some of the Collider Division's most critical buildings, is fed by a single 8-inch line that is heavily restricted by scaling. In the past this water main loop was fed from three lines on the water distribution network, two of which have been closed for various reasons over the years. At present the piping only allows for 50% of the expected water volume and pressure that would be required to fight a fire (1500 GPM versus the 3,000 GPM required to fire a fire). Computer modeling of the site's water system has determined that a new 10 inch water main connected to the existing 10 inch main along Cornell Avenue and to the existing 8 inch water main on Rutherford Drive by Hydrant 153 will eliminate the problem.	GPP	350		50	300			

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Propose
Utilities	357	55	58	1.4	AA1D0085	Steam System Improvements Sitewide: This activity continues the effort to modify steam and condensate piping and valves in selected manholes. Manholes 23/23A and 11/65 are the next highest priorities requiring attention. Modifications and improvements for the steam and condensate piping system within specific manholes onsite were recommended in a steam manhole survey for safety and reliability of the steam distribution system. Construction efforts will include providing valve telltales in high-pressure steam and condensate blind flanges; replacing existing steam traps with new disk-type traps with integral strainers, including valved by-passes; installing valves test drip legs on the down-stream side of each trap; providing valved warm-up bypasses around steam valves; and replacing selected steam shutoff valves with integral bypasses.	GPP	2550			300	300	300	60
Utilities	184	57	57	4.6	AA4D0065	Fiber Cable WWTF: Update Ethernet Control System: - Project will provide for the updating of the ethernet interface at the Waste Water Treatment Facility (WWTF). This consists of running fiber Ethernet cable on existing BNL poles from Bldg 575 to Bldg 603 to tie into the BNL WAN at Bldg 603. Existing system uses lease line for controls and communications and is vulnerable to lighting strikes.	GPP	100				100	100	10

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	167	52	52	4.4	A98D0024	Site Emergency Generator Resistive Loadbank: This project will provide for the installation of an Electrical Connection Station and associated cabling at each of the 26 Emergency Generator locations in order to facilitate utilization of the trailer-mounted loadbank. This permanently mounted connection station will allow temporary disengaging of the generator and it's associated transfer switch to a standby mode, making the loadbank available to exercise and test each of the respective engine generators to their recommended load level to insure that load sensitive parameters are functional.	GPP	390				390	390	39
Utilities	160	60	60	4.6	AA2D0071	Increase CCWF Cooling Tower Capacity: This project will provide for the installation of one new 5,000 GPM cooling tower at the Central Chilled Water Facility (CCWF). Scope includes 150 HP condenser water pump, piping, electric, and control modifications. Piping, electric, and cooling tower basin will be sized to allow for the future installation of two additional cooling tower cells. This tower is needed to provide crucial reserve condenser water capacity. At present, the single greatest vulnerability at the CCWF is the condenser water system, particularly the cooling towers. Further, for a relatively small incremental cost, this project could also provide "free cooling" to process and building loads during the winter months to eliminate mechanical cooling and associated energy and operating costs. Depending upon the funding level received, this project could be accelerated through pre-purchase of equipment.	GPP	1800				340	590	180

													FY 2008	1
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	133	57	57	1.5	AA5D0034	Upgrade 6" Piping North of B/905,	GPP	233	1 1101	1 12000	1 12007	233	233	233
Stilles	155	31	31	1.5	AASBOOT	Hydrant 243: This project will provide for the replacement of the existing 6-inch ductile iron piping from the 8-inch water main connection north of Building 935 to Hydrant 243 by Building 938 with new 8 inch piping. The existing piping only provides 600-gpm flow for fighting fires. A flow of 1500-gpm is required to adequately fight a fire in this area	GII	200				233	233	20
						protected by the water main. The area of								
						concern includes buildings 938 and 939.								
Jtilities	116	55	55	4.2	A98D0016	Back-Pressure Control Enhancements (B/701 Piping Mod): The CCWF utilizes back-pressure control valves to control chilled water return pressure. This is done to prevent siphoning of chilled water from building 701 to the chilled water storage tank. This project will lower the piping in building 701 and thus lower the pressure control requirements at the CCWF. This in turn will reduce pumping energy and cost.	GPP	60				60	60	•
Itilities	116	55	55	4.4	N98D0086	New Transformer #9: This project will provide for increased transformer capacity to allow RHIC and AGS to run in the event of a power loss in the 631 or 638 substations. This will allow consolidation of the AGS loads at the 631 substation. To accomplish this, AGS, MMPS and RF feeds will be relocated from 603 substation to 631. Booster and/or RHIC experiments will be required to "shutdown" in the event of failure of any one of the transformers feeding Booster and/or RHIC.	GPP	1800				299	299	180

BNL's G	SPP FUND	ING												
													FY 2008	3
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Utilities	146	57	57	4.5	AA6D0020	Improvements to Utility Systems: This project will provide for the upgrade of various utility systems to include the replacement of existing electrical feeders, potable water distribution system enhancements in the apartment area, Central Steam Facility structural modifications, Water Treatment Plant upgrades, steam main replacements along Cornell Avenue and water main replacements for fire suppression support. These systems have become unreliable and are in need of a total overhaul in the locations listed to provide utility service reliability.	GPP	3000						3000
						UTILITIES TOTAL			2.669	1,750	1.440	2.203	2,453	8.464
									2,000	1,100	1,110	2,200		0,101
ESH	327	52	55	1.1	A98D0167	AGS MMPS Loss Prevention and Containment: This project will provide for loss prevention protection to the AGS Main Magnet Power Supply (MMPS) transformer yard (B/928). Transformers in this yard are mineral oil cooled and require containment be provided in accordance with EPA regulations. A new containment pit would be constructed to contain possible releases of mineral oil and loss prevention will be accomplished by segregation. The project is being planned to coincide with the replacement of the transformers by C-A.	GPP	950		950				

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	317	56	59	2.1	AA0D0007	C-A Tritiated Cooling Water System Mods: There are a total of 16 tritiated water systems at C-A that require upgrade work in order to be in compliance with Suffolk County Article 12. This activity would continue the program to eliminate the existing underground single pipe or single containment systems, eliminate connections to groundwater recharge and add programmable logic controls,	GPP	1800	1331		469			
ESH	317	55	58	2.1	AA4D0093	monitoring and alarms to all systems.  Backflow Preventors B/463 Remaining: This project will provide for the installation of a backflow prevention device on a potable water supply line servicing B/463. This is a continuation of BNL efforts sitewide to install backflow protection devices to protect the potable water system. This action will install one device to complement the device installed in FY05 to complete backflow protection of the potable water system from activities in B/463.	GPP	250	125	125				
SH	299	62	65	4.4	AA5D0012	Smoke Detection B/515 BCF Under Floor and Above: This project will provide for the installation of smoke detection above the suspended ceiling and below the raised floor in the Brookhaven Computer Facility. The NFPA 75 code identifies the need for smoke detection to be installed above the suspended ceiling and below the raised floor to provide early warning of a possible fire. This allows for early control of an event before endangering vital experimental operations and provides for the protection of millions of dollars of computing equipment.	GPP	100		100				

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	289	58	61	1.1	AA4D0070	Correction of OSHA Deficiencies - Capital: This project will correct OSHA identified instances identified in the OSHA Inspection report of February 2004. The corrective actions to be completed will be focused on capital improvement activities including upgrade or installation of new eye wash stations, repairs/replacement of equipment utilized in rigging/hoisting activities associated with cranes, installation of emergency/egress lighting for some buildings, installation of handrail/guardrails/fall protection, etc. Activities have been prioritized based upon their perceived potential to directly cause injury to workers. The Laboratory has committed to fully address all findings of the OSHA audit by December 2007.	GPP	650	400	125	125			
ESH	89	52	55	1.4	AA5D0028	Installation of Lighting Contactors: This project will provide for the installation of remote contactors for interior building lighting in approximately 25 buildings on site. These contactors with remote switches would be installed by building entrance doors for the control of interior lighting to meet requirements of NFPA 70E rather than have unqualified personnel opening electric panels and operating circuit breakers. These funds would provide for the completion of 3 – 5 of the 25 buildings in question.	GPP	300		50	100	150	150	150

BNL's G	SPP FUND	ING												
													FY 2008	1
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	70	50	53	1.1	AA2D0008	Modifications for ADA Compliance, Phase III: This project is a continuation of annual improvements made to various buildings on site to bring areas into compliance with the Americans With Disabilities Act. Priorities have been placed upon areas open to the general public and areas where employees with disabilities area working and could be hampered by current conditions such as need for automatic door openers, handicap assessable toilets, wheelchair lifts, etc. A portion of the funds identified will be held in reserve to address emerging issues as they surface.	GPP	150	66	84				
ESH	317	55	58	2.1	AA1D0045	Installation of Backflow Preventors - Backlog: This project will install cross connection control devices at locations throughout the site to bring facilities into compliance with the Safe Drinking Water Act and Part 5 of the New York State Sanitary Code. This next highest priority facilities are B/510 B/912.	GPP	500			125	125	125	250

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	202	57	57	1.4	AA1D0106	BNL Sitewide Eyewash and Safety Shower Upgrade: This project will provide for the upgrade and/or relocation of existing eyewash and safety showers in major facilities at BNL where hazardous chemicals (solvents, acids, and bases) are used. This will bring these facilities into compliance with ANSI Z358.1-1998, the currently accepted industry standard for safety equipment design and operation. Currently many eyewash stations and safety showers do not meet industry consensus design specifications and have been cited for violation during the February 2004 OSHA audit of BNL facilities. BNL has conducted a comprehensive review of the status of existing equipment and from that data has identified deficient equipment and will prioritize the replacement activities on a risk basis.	GPP	800			200	200	200	600
ESH	97	53	53	1.5	AA5D0055	Upgrade Fire Alarm Panels in B/911A Annex: This activity will provide for the replacment and upgrade of the local fire alarm panels in the B/911 Annex which are beyond useful life (some over 40 years old). In many cases these panels are obsolete and replacement parts are no longer available. Recent failures of older panels are in evidence and highlight the need for upgrades. Specifically, the project includes the upgrade of the existing local fire alarm control panels and the installation of new signal lines as needed.	GPP	312			312			

													FY 2008	3
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	97	53	53	1.5	AA5D0056	Upgrade Fire Alarm Panels at B/510 Loading Dock: This project will provide for the replacement and upgrade of the local fire alarm panels in the B/510 Loading Dock area which are beyond useful life (some over 40 years old). Many of these panels are obsolete and replacement parts are no longer available. Recent failures of older panels are in evidence and highlight the need for replacement. Specifically, the project includes the upgrade of the local fire alarm control panels and the installation of new signal lines as needed.	GPP	155			155			
ESH	70	50	50	1.1	AA4D0029	Upgrades for Americans with Disabilities Act Compliance, FY07 - FY09: This activity will continue the efforts started in FY2000 to bring facilities into compliance with the Americans With Disabilities Act. A consultant has identified deficiencies around site and this list has been prioritized utilizing criteria which includes: presence of a disabled employee, utilized by disabled tenants, utilized by the public. Activities typically involve the installation of chair lifts, wheelchair accessible ramps, and modifications to lavatories, conference rooms and parking facilities to accommodate wheelchair or other handicapped individuals.	GPP	150			50	50	50	100

													FY 2008	1
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	97	53	53	1.5	AA1D0003	Replace Various Fire Alarm Panels Sitewide: This project will provide for the replacement of local fire alarm panels and upgrade systems which are beyond useful life (some over 40 years old). Many of these panels are obsolete and replacement parts are no longer available. Recent failures of older panels are in evidence and highlight the need for upgradest. Specifically, the project includes the upgrade of the local fire alarm control panels at Bldgs. 555, 913 and 130/134.	GPP	1650				150	150	650
ESH	24	37	37	1.5	A96D0039	Archive Records Storage Fire Prot. Upgrade B/494: This activity will provide upgrades in fire protection for the BNL Records Holding Area (RHA) our on-site records storage facility. This facility requires sprinkler protection to comply with federal regulations and interior modifications to correct deficiencies in the environmental conditions required to protect the irreplaceable and vital records stored there. Engineering was previously started on this activity in FY2000.	GPP	100	7			93	93	93

													FY 2008	3
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
ESH	145	45	45	1.6	AA3D0024	BNL Vehicle Radiation Monitor Upgrade: This project will provide for the upgrading of BNL's aging vehicle monitor with a new one (life cycle replacement issue). The vehicle monitor is designed to detect small amounts of radioactivity in a wide array of shipments such as industrial waste, scrap materials, soils, etc. This automated detection system is designed to prevent the unintended and unapproved release of radioactive material to the public and/or uncontrolled areas on the BNL site. The new vehicle monitor will possess improved detection capabilities over the existing vehicle monitor (e.g., a third large-area horizontal plastic scintillator detector in addition to	GPP	95				95	95	95
ESH	299	55	55	1.1	AA5D0032	Implementation of 10 CFR 851 Worker Safety & Health: This project will provide funding to ensure that there are no undetected risks within the complex for which the laboratory could become liable and fined under this new law. Although many safety deficiencies were corrected under the OSHA compliance initiative it is anticipated that future Tier 1 inspections will detect violations. Focus will be on electrical safety, fall protection; replacement and upgrade of faulty heat detectors, potential slip and fall issues, steam manhole improvements to minimize hazards associated with water hammer, installation of press brake guards, fire detection/suppression systems installation in dormitories and fire alarm panel replacements.	GPP	2500						2,500
						ESH TOTAL			1929	1434	1536		863	

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Prog Support	MD	57	60	2.1	AA4D0003	B/912 Power and Cooling Water Upgrades: This project will provide for the continuation of power, cooling water supply/distribution, and shielding modifications within B/912. These modifications are required to facilitate operations within the facility and to accommodate e-cooling investigations.	GPP	800	675	125				
Prog Support	370	60	63	4.4	AA4D0082	Upgrade of Labs W6 and W8, B/703: This project will provide for the upgrade of one hood in B/703, Lab W8 to accommodate the synthesis of nanotubes as part of the Materials Synthesis strategic initiative and upgrade Lab W6 by overhauling the existing chemical hood and the installation of a new chemical hood. These modifications are a prerequisite for safe work for any synthetic or crystal growing effort and will provide adequate laboratory space for future hires in the Materials Synthesis Center.	GPP	710	50	660				
Prog Support	300	60	63	4.3	AA5D0015	RAD Detector and Evaluation Center (RADTEC) Enhancement: This project will provide for the installation of enhancements to the RADTEC Field Test Site. Enhancements would include extension and paving of road in the Detector Test Area; enhancement of electrical service to the area to power new detectors; and removal of equipment in B/830 to free up space for receipt and inspection of detectors.	GPP	330		330				

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Propose
Prog Support	250	60	63	4.3	AA5D0038	Structural Modifications for Drill, B/535: This project will provide for the reinforcement of the first floor in the B/535 PC Lab to enable the installation of a new Schmoll MX1-24 CCD Printed Circuit Board Drilling/Routing system in Room B114. The machine has already been purchased and delivered. Due to weight limitations (9800 lb) the installation requires the fabrication and installation requires the fabrication and installation of permanent structural supports under the smart drill. This smart drill will allow the printed circuit board facility to fabricate complex high density, high count multi- layer printed circuit boards that require extremely demanding registration requirements that are extending beyond the reach of our current post etch punch system.	GPP	90		90				
Prog Support	216	55	58	4.6	AA5D0035	Install A/C RHIC Power Supply Houses: This project will provide for the installation of air conditioning in critical RHIC power supply buildings to improve reliability and flexibility of the RHIC Experimental Program. Currently, much of the RHIC power supplies and associated electronics are cooled with ambient air leading to failures due to overheating and humidity in warm summer weather and instabilities in cooler weather. It is estimated that 13 Collider hours were lost in the first two weeks of the June 2005 run alone due to this type of failure.	GPP	650		325	325			

													FY 2008	}
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Prog Support	MD	58	58	1.1	AA1D0101	New Off-Gas Stacks , B/801: This project will provide for the design and construction of a stack for radiological exhaust emissions from the equipment (hot cells and certain fume hoods) of B/801 that are currently exhausted through the 100-meter stack via B/802. This would eliminate B/801's dependence on the 100-meter stack which is scheduled for demolition as part of the High Flux Beam Reactor D&D. A new stack at B/801 would enable proper sampling and monitoring of emissions.	GPP	830		60	770			
Prog Support	210	60	60	4.4	AA4D0083	Upgrade of Labs 2-115, 2-116 and 2- 117, B/510: The Materials Synthesis Center will be an important component of the Lab's expanding effort and leadership theme in Strongly Correlated Materials. Labs 115, 116, and 117 are planned for an important pending hire and a future hire the following year. These labs are currently unusable and need upgrades of fume hoods, plumbing, painting, etc.	GPP	1384			335	1049	1049	1049

													FY 2008	}
Category	RPM Equivalent Score	Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Prog Support	136	57	57	4.3	AA5D0010	Liquid Nitrogen Conduit Infrastructure for NSLS X-Ray Ring: This project will provide for the construction of a liquid-nitrogen conduit system to provide liquid nitrogen on demand at a number of beam lines around most of the NSLS X-ray floor to maintain competitive with other Light Sources around the world. This project will install cryogenic lines from the external storage dewar to the beamline drop-off locations by routing the lines on the outside of the NSLS roof. They will penetrate the roof at ten locations for distribution points at beam lines X4, X6, X8, X12,,X17, X21, X25, 26, X29, and one other to be designated later. Each drop-off will have a terminating bayonet with a shut-off valve. Individual custom distribution systems for each specific beamline are not included in this effort and will be provided by Users.	GPP	520			70	450	450	450
Prog Support	142	50	50	4.4	AA1D0072	Convert Cubicles to Lab Space for Genome, B/463: The Biology Department's Genome sequencing program is spread out in three areas within building 463. The "Genome wing" could accommodate the entire effort if an area, currently cubicle space, is converted into usable laboratory space. This would enable the principal investigator to manage the program more efficiently. It will also free up needed lab space around the Department for new hires.	GPP	70				70	70	70
						PROGRAM SUPPORT TOTAL			725	1,590	1,500	1,569	1,569	1,569

													FY 2008	
Category	RPM Equivalent Score	Raw CAMP Score	Mgmt Adjust CAMP	CAMP Driver*	ADS#	Description**		TEC (\$K)	Prior	FY2006	Pres Reqst FY2007	FY 2007 Flat	FY2007 +3.5%	Lab Proposed
Jser Support	116	50	50	3.6	AA2D0009	Security System Improvements Sitewide: This project will provide for the completion of projects that upgrade Laboratory wide security capabilities through the implementation of improved technologies. Maximum protection from vandalism, sabotage, terrorism and theft will be the primary focus. In FY2006, a traffic control barrier system will be installed at the Main Gate as well as continuation of lighting improvements to the outside of building areas including dormitories, near roadways, and other	GPP	250	140	110				
Jser Support	196	57	57	4.4	A98D0113	A/C Meeting Space - North Room Brookhaven Center: This project will provide for the renovation of the North Room of Brookhaven Center to provide summer climate control to make the room available for year round use. The introduction of climate controls and other facility improvements to the North Room will increase the Laboratory's capacity to accommodate on-site meetings and provide increased space for training. There is a high demand for conference and training space on-site, however, the North Room cannot be used during the warmer months due to the lack of air conditioning, and during the colder months because of the noisy and ineffective heating system. As a result conferences and meetings must be scheduled to off-site locations at an increased cost to the Laboratory. This project will install air conditioning and effective heating, improve overall energy efficiency, and increase the utility of the North Room for conferences, meetings	GPP	656				656	656	65

	Category Equivaler Score User 11	t CAMP Score	Adjust CAMP	Driver*		Security System Improvements FY07 - FY09: This project will provide for the continued upgrades of security capabilities Laboratory wide, through the installation and implementation of	GPP	(\$K)	Prior	FY2006	Reqst FY2007	2007 Flat	+3.5%	Lab Proposed 200
User Support  116 50 50 3.6 AA4D0027 Security System Improvements FY07 - FY09: This project will provide for the continued upgrades of security capabilities Laboratory wide, through the installation and implementation of improved monitoring/surveillance technologies and the addition of lighting to ensure pedestrian safety.  120 200 200 200 200 200 200 200 200 200		6 50	50	3.6	AA4D0027	FY09: This project will provide for the continued upgrades of security capabilities Laboratory wide, through the installation and implementation of	GPP				100	100	100	200
						technologies and the addition of lighting to								
						USER SUPPORT TOTAL			140	110	100	756	756	856
						TOTAL FUNDED				6,550	7,070	7,070	7,320	21,756

<sup>\*</sup> CAMP Drivers: Health and Safety (H&S), Environmental and Waste Management (E&WM), Safeguards and Security (S&S), and Mission and Investment (M&I); Code is in Table.Column format. For example, 4.4 would be found in the Mission & Investment Table (4) and the score driver would be Mission Capability (.4).